The politics of local policy variation

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THE POLITICS OF LOCAL POLICY VARIATION

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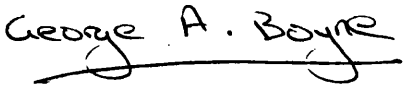

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In the course of this research I have accumulated debts which are few but large.

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My biggest debt, however, is to my mother and father for impressing upon me the value of a good education. This research is some reward for their efforts.

Summary

This research evaluates the impact of political variables on local policy outputs.

Chapter I analyses two political theories of local policy variation. The party government model suggests that policies are the product of the ideological disposition of ruling parties. Rational choice models suggest that policies are the result of the pursuit of narrow self interest by policy makers. The practical problems of testing these theories are analysed, and the methodological implications of previous tests of the impact of politics in the U.K. are evaluated.

Chapter II critically reviews the 'output studies' literature on local policy variation. The central issue in this field has been the relative importance of environmental and political effects on policies. It is argued that evidence on this issue reveals more about the methods of output studies than about the substance of local policy making.

The relative validity of rational choice and party government models is evaluated empirically in chapters III to VII. The impact of median voter preferences on local tax policies is measured in chapter III, and the impact of bureaucratic power on

local staffing policies is measured in chapter IV. The statistical results do not support the hypotheses for either of these rational choice variables.

Chapters V to VII investigate various aspects of the party government model. In chapter V the 'output disaggregation' hypothesis is tested. The evidence indicates that party effects on aggregate and sub-service outputs are not significantly different. Chapter VI tests the impact of party control on local economic policies and shows that party effects in this policy area are significant. Chapter VII tests the impact of local politics and central grants on changes in total expenditure. The impact of both of these political variables is significant.

Chapter VIII evaluates the quality of the empirical evidence, the validity of political theories of local policies, and the utility of the output studies approach. Two main conclusions are drawn. First, local policies are better explained by the party government model than by rational choice models. Second, the output studies approach is capable of providing explanations of local policy variation which are both theoretically coherent and statistically successful.

CONTENTS

CHAPTER I

INTRODUCTION

This research examines the reasons why different local authorities adopt different policies. More specifically, the aim is to measure the impact of political variables on local policy outputs. The main focus is on the theoretical and empirical effects of four political variables: median voters, bureaucrats, political parties and inter-governmental grants.

The focus on the politics of local policy variation means that the analysis is located in the 'output studies' tradition in political science. However, a comprehensive approach to the explanation of local policy outputs requires a recognition of the importance of variables emphasised by other disciplines. Therefore, while the general theoretical perspective is political, the specific models which are tested are multidisciplinary.

The discussion in this chapter is divided into four sections. First, political theories of local policy variation are analysed. Second, the nature of the research problem is outlined. Third, the empirical evidence on the impact of political variables on local policies in the U.K. is evaluated. The final section provides an overview of the issues addressed in Chapters II-VIII.

1. Political Theories Of Local Policy Outputs

Public policies are generally viewed as the product of two sets of forces. First, the political choices of groups and organisations involved in the policy process, for example voters, party politicians and public officials. Second, constraints on political choice, for example economic, social and demographic conditions. The presence of political and constraint variables in models of policy outputs is pervasive, not only in analyses of local governments but also in time series and cross sectional analyses of national governments.(1)

The conceptualisation of local policies as the result of constrained political choice is closely related to Easton's systems model, which has served as a paradigm for political analyses of public policies.(2) According to this model, all influences on policy outputs are by definition in the environment of a political system or within the political system. This implies that if all local political systems were confronted by the same environmental constraints, then variations in policies would be entirely attributable

to variations in political choice. In this context, the key problem for political theory concerns the specification of the political variables which influence the choice of local policies.

Two broad theoretical perspectives on this issue can be identified. First, policies may be determined largely by the ideological disposition of the ruling political party. Second, policies may be a consequence of 'rational choice' in the pursuit of narrow self interest by policy makers. These theories are analysed in detail in the context of the empirical analyses in chapters III to VII. The main features of the theories are outlined in this section.

(a) Party Government

The view that policy outputs are influenced by the disposition of the governing party is widespread in both theoretical and empirical analyses of public policies. However, there is little in the way of a 'positive' theory of party government in the public policy literature. Instead, the hypothetical role of

party government seems to stem largely from a normative model of representative democracy. The rationale for representative government is that the electorate can secure a broad pattern of policies by choosing between alternative sets of political leaders. In principle, the electoral process bestows on the governing party unique formal authority to make public policies. The resource of 'legitimacy' can be used by party politicians to impose a distinctive pattern on the activities of government.

The translation of this normative model into a positive theory of policy outputs depends on the validity of two key assumptions. The first is that differences between parties are more than mere rhetoric. In the absence of genuine ideological differences, parties are likely to adopt much the same policies when faced by similar external constraints. There are good reasons for accepting the validity of this first assumption in the context of local policy variation in contemporary Britain. Ideological

differences between the major parties are generally considered to have become more pronounced in the last decade.(3) In local government in particular, party conflict has become more severe. While many Conservative councils have espoused privatisation and spending cuts, Labour councils have been pursuing new and more vigorous forms of 'local socialism'.(4)

The second assumption which underpins the party government model is that political leaders have some autonomy from external constraints. If the behaviour of ruling parties is dictated by force of circumstance, then distinctive policy preferences will find no expression in policy outputs. It is important to note that the party government model does not imply that politicians are 'free agents'. It simply implies that, in the context of given external constraints, different parties will produce different policies.

Thus the validity of the party government model requires that elected politicians have both the desire and the capacity to influence policy

outputs. If the impact of parties on policies is significant in practice, then it may be inferred that politicians have some autonomy from external constraints. If, further, the policies of ruling parties are consistent with their stated ideological preferences, then it may be concluded that the behaviour of governments bears some resemblance to the normative model of representative democracy.

Two aspects of the application of the party government model to local policy variation require elaboration at this point. First, most empirical analyses of local authority policies have considered only local party politics. However, the party government model is also relevant to the influence of central government on policy outputs. Explanations of local policy variation have usually treated central government policies as 'constants'. The supposed spatial uniformity of central government constraints implies that central policies cannot be a source of local policy diversity. However, not all central policies are properly considered as constants. Some

policies are applied selectively, at the discretion of the ruling party in central government. The allocation of inter-governmental grants is foremost amongst such policies. It has been shown that the value, type and distribution of grants is partly dependent on party control in central government.(5) The party political influence on grant distribution has been especially marked in the 1980's as grant penalties have been used to punish local authorities which fail to cooperate with central policies. Therefore, a full examination of the party government model must encompass the role of both national and local political systems.

Another important aspect of the application of the party government model concerns the difference between the 'additive' and 'mediative' roles of local parties. An additive role implies that, whatever the circumstances, ruling parties are able to pursue distinctive policies. For example, Labour councils may spend consistently more than Conservative

councils, regardless of the level of service needs. A mediative role implies that the ruling party modifies the impact of external constraints on policy outputs. For example, the relationship between service needs and spending may be more strongly positive in Labour controlled authorities than in Conservative controlled authorities.

The distinction between the additive and mediative roles of local parties was first highlighted by Stonecash[6] and by Hansen.[7] The distinction is illustrated in diagrams I.A and I.B in a format adapted from Stonecash. In diagram I.A the role of party politics is additive. The size of the additive effect is shown by the gap, G, between the spending of Labour and Conservative councils. At all levels of need, Labour spending is higher than Conservative spending by the same amount. In addition, the response of each party to extra units of need is the same, as indicated in diagram I.A by the identical slopes of the LAB and CON lines. In diagram

THE ADDITIVE AND MEDIATIVE ROLES OF PARTY POLITICS

Diagram I.A: Additive

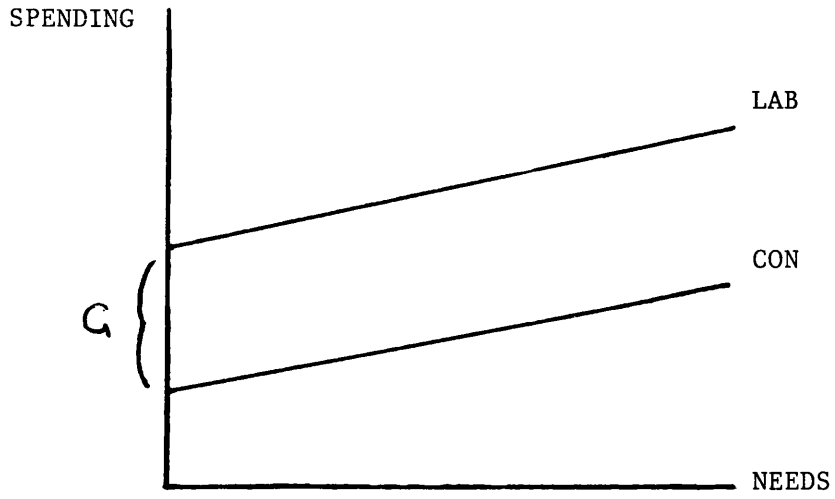
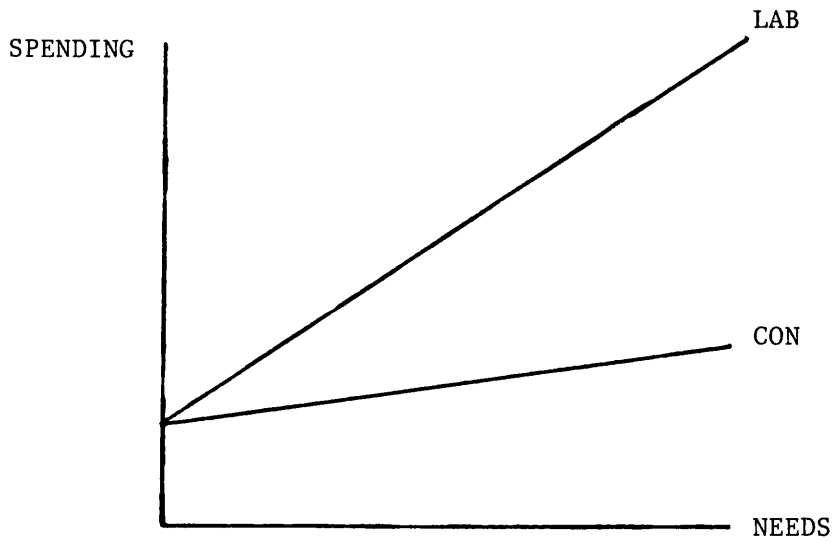


Diagram I.B: Mediative



In both diagrams, LAB shows the relationship between need and spending in Labour controlled authorities; and CON shows the relationship between need and spending in Conservative controlled authorities.

I.B, the role of party politics is mediative. Party politics literally 'mediates' between service needs and spending. In contrast to the additive situation, the difference between Labour and Conservative spending is not uniform but depends on the level of need. The impact of extra units of need on spending is higher in Labour authorities, as shown in diagram I.B by the difference in the slopes of the LAB and CON lines.

Both Stonecash and Hansen stress the mediative role of local party politics at the expense of the additive role. Stonecash argues that the primary role of politics is to facilitate or inhibit the impact of other variables on policies. Thus political variables should not "be viewed as sufficient ... to cause policy or as being independent, additive causes of policy".(8) Similarly, in Hansen's formulation of the role of parties, "political effects are no longer expressed as variables, but as transformation effects".(9) Thus in Hansen's empirical analysis only the mediative

role of politics is estimated. However, there are no general theoretical grounds for emphasising either additive or mediative effects. Therefore the potential relevance of both effects should be considered in the context of particular policies.

To summarise, the party government model suggests that the key political influence on local policy outputs is the disposition of ruling parties. This theoretical perspective suggests that the impact of parties should be examined at both national and local levels, and that the role of politics may be either additive or mediative.

(b) Rational Choice

Since the 1970's 'rational' or 'public' choice models have made major inroads into political science.(10) The key characteristic of this perspective is that public policies are the product of self-interested behaviour by policy makers. Unlike the party government model, the rational choice approach is explicitly based on

a formal positive theoretical framework. Rational choice models stem from the "economic study of nonmarket decision making", which assumes that "man is an egoistic, rational utility maximiser".(11)

The emphasis on narrow self interest implies that there is little place in rational choice theory for the broad ideological goals which are central to the party government model.

All theories of policy outputs necessarily involve an abstraction from the complexity of political systems. This applies as much to the party government model as to rational choice theory. However, the rational choice approach is more than a simplification of 'political reality'. It implies that political systems are analagous to economic systems, and that the same assumptions and modes of analysis apply to both. The outputs of economic systems can be explained by the operation of demand and supply. Correspondingly, the outputs of political systems can be explained by the self interested behaviour of the consumers and producers of public policies.

Rational choice theory contains two main models which can be applied to the explanation of local policy outputs. The first is the median voter model, which is associated principally with Downs.[12] This model implies that policy variations across local authorities are attributable to variations in median voter preferences. The political system is treated as analagous to a perfectly competitive market in which the consumer is sovereign. Parties must either meet median voter demands or face political bankruptcy.

In the median voter model parties do not play an additive role. Ruling parties are not assumed to follow consistently distinctive policies. Instead, the median voter approach assumes that politicans' self interest consists of gaining and keeping office. It is the pursuit of this goal which ensures that policies reflect median voter preferences. Political entrepreneurs adopt policies which correspond to median voter interests because this course of action serves their own self interests. Thus Downs argues

that "parties formulate policies in order to win elections, rather than win elections in order to formulate policies".(13) This view contrasts sharply with the party government model which emphasises the policy impact of broad ideological programmes.

The median voter model also precludes a mediative role for political parties. The median voter approach may be viewed as a specific version of the general 'transmission' model of policy outputs.(14) The transmission model implies that political institutions are simply mechanisms for converting public preferences into governmental decisions. Similarly, according to the median voter model, parties are neutral channels for the conversion of consumer demands into public policies. No mediation occurs, and no distinctive party bias is impressed upon the relationship between median voter interests and policy outputs.

The second rational choice explanation of policy outputs concentrates on the role of the producers rather than the consumers of public policies. The 'bureaucratic power' model is principally associated with Niskanen.[15] It suggests that local policy variations are the product of variations in the capacity of public officials to pursue their self interest. Niskanen argues that most of the literature on bureaucracy "has represented the bureaucrat either as an automaton or as maximising some concept of general welfare". However, "a bureaucrat, like anyone else, maximises his personal utility".[16]

The bureaucratic power model portrays political systems as analagous to an economic market which is controlled by a monopolist. In this market, bureaucrats have "overwhelmingly dominant monopoly power"[17] over the political 'sponsors' who provide them with funds. Thus the potential impact of party ideology is blocked by bureaucratic self interest. Niskanen argues that "the primary reason for the

differential bargaining power of a monopoly bureau is the sponsor's lack of a significant alternative and its unwillingness to forego the services supplied by the bureau".(18) In such circumstances it makes little difference which party is in office. The ruling party has no option but to buy the policy package on offer from bureaucrats.

In sum, whereas the party government model emphasises the dispostion of ruling parties, rational choice models emphasise the selfish behaviour of participants in the policy process. Rational choice theory suggests that the key political influence on policies is either the self interest of voters as policy consumers, or the self interest of bureaucrats as policy producers.

2. The Research Problem: Identifying The Impact Of Politics

The previous section analysed the theoretical impact on policies of several political variables. This section considers the general problems of identifying the empirical impact of these variables. The focus at this stage is on the main conceptual issues in the measurement of political effects. Specific technical issues are discussed in the context of the empirical analyses in later chapters.

The framework of 'constrained political choice' suggests that political variables would be the sole source of policy variation if all local authorities faced the same external constraints. In other words, the general hypothesis is that politics is a significant influence on policy outputs, ceteris paribus proviso. For example, the party government model implies that if all other things are equal, then Labour councils will spend more than Conservative councils. The problem of testing such hypotheses in practice is precisely that all other things are not equal. External constraints on policies also vary

across local authorities. For example, some of the variation in policies may be the result of differences in service needs and financial resources. In addition, such constraints are not randomly distributed across local authorities, but tend to be systematically related to political variables. For example, Labour representation on councils tends to be high in areas of high needs and low resources.

Therefore, to obtain valid measures of the impact of politics it is necessary to 'control' for other influences on policies. If political variables are tested without proper controls then their effect may be either overestimated or underestimated.(19) The following discussion illustrates the potential sources of bias for the case of local party politics. However, the same arguments apply to central grants, median voters and bureaucrats.

The first form of bias to be considered is where political effects are overestimated. This can arise if a political and constraint variable are positively related and, further, both variables are positively related to policy outputs.(20) A hypothetical example of this

situation is shown in table I.1(a). Labour representation and service needs are positively related, and both variables are positively related to spending. Case (i) shows the apparent relationship between politics and spending in the absence of a control for needs. The figures suggest that Labour spending exceeds Conservative spending by £50 per capita. Case (ii) shows the relationship between politics and spending when a simple control for need is introduced, by separating councils into 'high need' and 'low need' groups. Most Labour councils are in the high need category and most Conservative councils are in the low need category. The figures still indicate that spending is higher in Labour than in Conservative councils, but now by only £20 per capita. Thus when councils <u>at the same level of need</u> are examined the measured impact of politics is reduced. In the absence of the control for need, the figures in case (i) mistakenly attributed some of the influence of needs to politics.

The second form of bias to be considered is where political effects are underestimated. This can arise if a political and constraint variable are negatively related and, further, both variables are positively related to policy outputs.(21) In this situation a

TABLE I.1: THE IMPLICATIONS OF CONTROLLING FOR OTHER RELEVANT VARIABLES

1(a) Politics, Needs and Spending

		LABOUR		CONSERVATIVE	
		All (n = 100)		All (n = 100)	
Case (i)	Spending per capita, no control for needs	£100		£50	
		High Need (n = 80)	Low Need (n = 20)	High Need (n = 20)	Low Need (n = 80)
Case (ii)	Spending per capita, controlling for needs	£110	£60	£90	£40

1(b) Politics, Resources and Spending

		LABOUR		CONSERVATIVE	
		All (n = 100)		All (n = 100)	
Case (i)	Spending per capita, no control for resources	£75		£75	
		High Resources (n = 20)	Low Resources (n = 80)	High Resources (n = 80)	Low Resources (n = 20)
Case (ii)	Spending per capita, controlling for resources	£95	£70	£80	£55

measure of the impact of either explanatory variable in isolation will be contaminated by the countervailing effect of the other. The influence of the two variables will tend to 'cancel out' and their estimated effect on policies will be biased downwards. A hypothetical example of this situation is shown in table I.1(b). Labour representation and financial resources are negatively related, and both variables are positively related to spending. Case (i) shows the apparent relationship between politics and spending in the absence of a control for resources. The figures suggest that there is no difference in the spending policies of Labour and Conservative councils. Case (ii) shows the relationship between politics and spending when a simple control for resources is introduced. The figures now indicate that Labour councils are higher spenders than Conservative councils. When councils with equal resources are examined the measured impact of politics is shown to be significant.

In the absence of the control for resources, the figures in case (i) were distorted by the opposing effects of the political and resource characteristics of individual authorities.

Thus, to identify the impact of politics, a methodology which controls for other relevant variables must be adopted. If the research design does not hold other variables constant, then the separate effect of politics cannot be isolated. It may be argued that to achieve 'genuine' control it would be necessary to use an experimental method.(22) This would require a research design in which two groups of local authorities, alike in all relevant respects, were given different political characteristics. For example, one group might be assigned Labour majorities and the other group assigned Conservative majorities. The effects of the 'treatment' variable, party control, could then be investigated. In this situation all characteristics, except the variable of interest, would literally be held constant. However, such an experimental method is both inappropriate and impractical in the context of the analysis of local policy variation. It is inappropriate because the objective is to measure the impact of politics under 'real' rather than 'laboratory' conditions. It is impractical because the characteristics of local authorities cannot be manipulated for experimental purposes.

A practical solution to the problem of control is to use multivariate statistical analysis.(23) This permits relevant variables to be held constant, albeit 'artificially'. Multivariate techniques involve the statistical manipulation of the data on local characteristics, rather than the experimental manipulation of the actual characteristics. This approach allows the impact of politics to be tested 'as if' all other things were equal.

The success of this solution to the problem of control is dependent upon the identification of the relevant variables which should be held constant. The only available criteria of 'relevance' are theories of the relationship between constraint variables and policies. Thus, by necessity, the quest for the impact of politics must be pursued within the context of wider theoretical and statistical models. Otherwise it will be impossible to identify accurately the effect of politics on policy outputs.

3. Research on The Politics of Local Policy Variation In The U.K.

The reasons why different local authorities adopt different policies have been widely analysed in the U.K. for over 20 years. Suggestions that this field of research is moribund are decidedly mistaken.(24) The volume of published work in the 1980's confirms that for many researchers the problem remains intriguing.(25) This section evaluates the substantive and methodological implications of tests for the impact of politics in the U.K.

The explanation of policy variations across local authorities has attracted interest from the academic disciplines of political science, economics, geography and social administration. The various disciplines have approached the problem of local policy variation with a common general aim and methodology. All are ultimately concerned to uncover the 'causes' of policy outputs, and all use statistical methods to produce evidence and draw conclusions. Within this common framework each of the disciplines has concentrated on particular explanatory variables. In political science the focus has been on aspects of local political

systems, particularly the party political characteristics of councils.[26] Other disciplines have emphasised the impact of various constraints on local policy outputs. Economists have analysed the influence of unit costs and financial resources on the production of local services.[27] In social administration the emphasis has been on the need for services, as indicated by the characteristics of the local population.[28] Geographers have devoted attention to the influence of location and space on local public policies.[29]

There is increasing evidence of an exchange of concepts, measures and results between the various disciplines concerned with identifying the determinants of local policies. For example, political scientists have recently drawn heavily upon geographical concepts[30] and geographers have paid considerable attention to service needs.[31] However, while in principle such interchanges promise benefits, in practice there have been substantial costs because the transfer of measures has been largely ad-hoc. It is common for variables to be 'borrowed' from other disciplines and used as if their importance is so well

established that little discussion is necessary. For example, in political science there is a tendency to grab a standard set of need and resource measures and plug these into statistical models where the main focus is on politics. However, none of the disciplines has yet identified an explanatory variable of sufficient status to merit an automatic place in a model of policy variation.

Political variables have probably been the main casualty of the ad-hoc exchange of measures between disciplines. This is because there is a general recognition that the creation of public policies is an inescapably political process. Therefore most studies of local policy variation in the U.K. have included measures of politics amongst their explanatory variables. However the specific political measures employed in economics, geography and social administration are seldom justified.(32) This defect is compounded in studies by political scientists which 'trawl' for political effects on policies. The implications of these problems can be explored through an analysis of the existing evidence on the impact of politics on local policies.

The statistical evidence produced by analyses of local policy variation is summarised in table I.2.(33) The figure on the left of each column shows the percentage of tests in each study which yielded a statistically significant relationship between measures of politics and policies. Most of the figures for the percentage of significant results are based on the impact of politics when other variables are controlled. The figure in brackets in each column shows the total number of tests for political effects in each study. The results of the various studies cannot be compared directly because of differences in the policy measures, control variables, groups of authorities and time periods. Therefore the focus here is on the overall pattern of the results.

The bulk of the evidence refers to the proportion of total council seats held by the Labour party or to the control of the council by the Labour party. The preponderance of these variables reflects their use in early studies by political scientists and subsequent transfer to analyses of local policy variation in other disciplines. Overall, the evidence indicates that the Labour party measures have been reasonably 'successful'. Around one third of the tests of

		Labour Seats	Labour Control	Conservative Seats	Conservative Control	Other Parties	Competition	Turnout
1	Boaden and Alford, 1969	100 (2)						
2	Oliver & Stanyer, 1969	33 (3)						
3	Alt, 1971	50 (12)					17 (12)	
4	Boaden, 1971	55 (11)						9 (11)
5	Davies et al, 1971	19 (58)						
6	Nicholson and Topham, 1971	0 (1)	0 (1)					
7	Davies et al, 1972	40 (10)						
8	Ashford, 1975	25 (12)	8 (12)	0 (12)	45 (11)			
9	Nicholson and Topham, 1975	0 (2)	0 (2)					
10	Ashford et al, 1976	100 (2)		100 (2)				
11	Danziger, 1978	25 (24)					4 (24)	13 (24)
12	Jackman and Sellars, 1978	100 (2)						
13	Pinch, 1978	66 (3)						
14	Schofield, 1978	100 (2)						
15	Foster et al, 1980	60 (5)		0 (3)				
16	Page, 1980		50 (2)					
17	Pinch, 1980	78 (9)						
18	Storey, 1980	63 (16)						
19	Cuthbertson et al, 1981		100 (1)					
20	Jackman and Papadachi, 1981	50 (2)						
21	Bebbington and Davies, 1982	50 (2)						
22	Bennett, 1982		94 (10)		0 (16)	0 (16)		
23	Davies and Ferlie, 1982	10 (10)						
24	Gibson, 1982		100 (2)					
25	Karran, 1982						3 (325)	27 (325)
26	Lamont, 1982	4 (25)				0 (7)		
27	Rickets, 1982		1 (2)		0 (2)			
28	Bennett, 1984		0 (6)					
29	Davies and Ferlie, 1984	0 (8)						
30	Hoggart, 1984	27 (26)	7 (14)	14 (14)	14 (22)	14 (28)		
31	Sharpe and Newton, 1984	24 (93)	12 (51)		8 (51)	12 (42)		17 (93)
32	Hoggart, 1985(a)		83 (18)			0 (12)	44 (18)	
33	Hoggart, 1985(b)		0 (2)			0 (2)		
34	Jesson et al, 1985	0 (1)						
35	Barnett, 1986		0 (2)		50 (2)			
36	Hoggart, 1987		60 (15)		60 (15)			

Note: full references for these studies are contained in the Appendix to this chapter

Labour seats and Labour control have produced statistically significant results. The results for the other political variables are more patchy. The quantity of significant results is often little more than might occur by chance. However it is inappropriate to place much weight on these results because there are important weaknesses in the measurement of both the political and the policy variables.

(a) Political Variables

In many studies political variables have been inserted into statistical models in a fairly casual manner. Two salient symptoms of this malaise can be noted. First, reasoned hypotheses for the expected relationship between specific political and policy measures are rare. The problem is particularly pronounced in studies which apply a single model to the explanation of a wide range of policy outputs.(34) In most tests in these studies political variables turn out to be insignificant. However, in the absence of hypotheses, there was no reason to expect any other result.

A closely related problem is that some studies build multivariate models on the basis of statistical rather than theoretical criteria.(35) In these studies political variables are discarded from further analysis if their bivariate relationship with policies is insignificant. However, as argued in section 2 above, the bivariate result by itself may be misleading. The significance of such political variables might have emerged once other variables had been controlled.

A second symptom of the casual specification of political variables is the neglect of lag structures. For example, in studies which apply the same model to various outputs a single lag structure is used, which implies that all policies are affected just as quickly or just as slowly by the political variables. In addition, in some studies political variables are measured <u>later</u> than the policy variables.(36) It has often been argued that the 'black box' of the policy making process is mysterious, but if causal effects flow backwards in time then it

must also be magical. Where such lag structures nevertheless produce significant results, it may simply be that measures of politics in an irrelevant time period are acting as proxies for politics in the relevant time period.

Another deficiency in the measurement of the impact of politics concerns the general failure to distinguish between the additive and mediative effects of political variables. The distinction between the two potential roles of politics is crucial to the interpretation of the existing evidence.

Most studies have estimated only the additive effect of party politics. These effects often prove to be insignificant, but it is possible that the analysis of the mediative role of party politics would have produced significant results. However, the mere possibility of mediation in principle is an insufficient basis for testing the mediative effect of politics on all policies. The theoretical basis of mediation in particular cases must be carefully

specified. The few tests of mediation which have been conducted show a tendency towards trawling.(37) Thus there is a danger that the quest for the mediative effect of party politics will appear to fail because a large proportion of insignificant results will be generated.

The distinction between additive and mediative effects also sheds important new light on the generally insignificant results for variables such as competition and turnout. It is increasingly recognised that some political variables can play both additive and mediative roles. However it has not been recognised that there are some variables which can play only a mediative role. Competition and turnout fall into this category. Taken in isolation such variables have no inherent positive or negative influence on policy outputs. Rather their role is to reinforce or weaken the influence of other variables, such as public opinion. Thus it is unsurprising that most tests of the additive impact of competition and turnout have produced insignificant results.

(b) Policy Variables

In one respect the policy measures which have been used are well suited to testing political models of policy formulation. The strength of the policy measures is that they usually focus on the relevant dimension of the concept of policy. Three aspects of policy can be identified.(38) First, policy 'outputs', which refers to formal policy commitments such as the allocation of resources to service provision. Second, policy 'outcomes', which refers to the standard of service produced with the resources allocated. Third, policy 'impact', which refers to the consequences of providing a particular standard of service. The aim of political models of policy formulation is to explain formal policy commitments, not service standards or effects. These are, after all, <u>output</u> studies not outcome studies or impact studies.

Almost all studies of local policy variation have analysed the formal commitment of

resources, for example through measures of spending or staffing. The use of such measures seems to owe more to data availability than to theoretical arguments that outputs are the relevant dimension of policy. Nevertheless, in this case the easy option has also been the appropriate option.

A second characteristic of the measurement of policies has been much less fortunate. Most of the policy variables refer to the level of spending or to the level of other local authority activities. However, such variables are largely historically determined and therefore do not reflect current choices concerning the commitment of resources. For example, the tremendous stability over time in levels of total spending is well documented.(39) In this context the appropriate measure of policy is the short-run change in spending rather than the long-run level of spending. Short-run changes are also the relevant measure for other aggregate aspects of local authority activity which have been

built up over many years, such as taxation and staffing. The level of expenditure may be an appropriate measure only for small services or service 'sub-functions' which have been shown to be less subject to incremental constraints.(40)

(c) Implications

The existing empirical evidence suggests that the relationship between politics and policies is generally insignificant. However, the conceptualisation and measurement of both political and policy variables has often been weak. This suggests that many of the statistical results, whether significant or insignificant, should be set aside. The empirical analyses contain too many deficiencies to constitute a fair test of whether 'politics matters'.

The empirical analyses in chapters III to VII aim to overcome these deficiencies and thereby to provide better evidence on the impact of politics. First, the impact of all the

political variables is tested only on policy outputs where there are strong theoretical reasons to expect a significant relationship. Thus, in these tests, political variables should have a better than random chance of producing significant results. Second, the assumed temporal sequences of 'cause' and 'effect' are specified through explicit lag structures. Third, where policy measures concern aggregate aspects of local authority activity the focus is on short-run changes rather than long-run levels. And finally, while the major focus is on political variables, all other explanatory variables are also tested on the basis of explicit hypotheses. Thus each political variable is tested in the context of a wider model which holds other relevant variables constant.

None of these characteristics of the evidence logically imply that political variables will be more significant than in previous studies. Nor is it the case that the models will necessarily produce better levels of statistical explanation.

However it is the case that more weight should be placed on evidence with these characteristics than the evidence in many previous studies.

4. The Structure of Chapters II to VIII

The output studies literature in the U.S.A. and U.K. is critically reviewed in Chapter II. Initial studies in the U.S.A. found that political variables had little effect on local policy variation. Subsequent output studies have been characterised by a virtual obsession with the question of the 'relative importance' of political systems and their environment. The question has been posed most sharply as 'does politics matter?' It is therefore necessary to deal with this issue prior to the empirical analysis of the impact of median voters, bureaucrats, political parties and central grants.

In general, output studies in the U.S.A. display similar problems to studies in the U.K. There is scant theoretical justification of the empirical tests or of the specific measures of politics, the environment and policies. Therefore, the focus on the relative importance of political variables has been a little premature.(41) Chapter II argues that the results for the relative impact of the environment and politics reveal more about the methods of output studies than

the substance of local policy variation. To a large extent, the results simply depend on the ratio of political to environmental variables in each study.

In one sense the answer to the question 'does politics matter?' is straightforward. Public policies literally cannot be produced in the absence of politics. The outcomes and impact of resource allocation may be produced by either market systems or political sytems.(42) However, only political systems can produce policy outputs. It is the authoritative allocation of resources by political institutions which gives public policies their distinctive character. Thus the conceptualisation of policy outputs as the product of a political process implies that 'politics matters' in the most fundamental sense.

However, the inherently political nature of the production of policy outputs does not mean that only politics matters. Therefore, it may be possible to investigate the relative importance of specific political and environmental variables within a general political model. Chapter II outlines a framework which may ultimately be applied to this issue, if political

variables are tested in a comprehensive model of local policy variation which also incorporates economic, geographic and social variables. Thus, valid estimates of the relative importance of specific variables depends on developments in several disciplines. The potential contribution of political variables to a more comprehensive explanation of policy outputs is explored in chapters III to VII. In particular, the relative validity of rational choice and party government theories of local policy making is investigated.

Chapters III and IV examine the validity of rational choice models of local policy variation. The analyses in these chapters constitute the first empirical application of rational choice theory in the field of output studies. In the light of the discussion of rational choice theory in the first section of this chapter, the roles of both median voters and bureaucrats are examined.

In chapter III the impact of median voters on local policy outputs is evaluated. The concept of median voter interests is operationalised and tested within the context of a model of variations in local tax

decisions. The specific hypothesis tested is that the tax payments of median voters are negatively related to the increase in local rate levels. The empirical analysis in chapter III also incorporates a test of the mediative effect of inter-party competition. The particular issue which is considered is whether party competition strengthens the relationship between median voter interests and policy outputs.

In chapter IV the validity of the bureaucratic power model is evaluated. Two operationalisations of the concept of bureaucratic power are derived and tested within the context of a model of variations in local staffing policies. The specific hypothesis tested is that bureaucratic power is positively related to the increase in local staffing levels.

Chapters V to VII assess the impact of party government on local policy variation.

Following the discussion of the party government model in section 1 above, the roles of both national and local political systems are examined, and both the additive and mediative effects of local politics are

evaluated.

In chapter V the validity of the 'output disaggregation' hypothesis is investigated. This hypothesis suggests that local party politics has more impact on sub-service expenditures than on aggregate service expenditures. The rationale for this view is that total spending on a service is an 'accounting abstraction' rather than a substantive political issue. The real focus of political conflict, it is argued, is at the concrete level of particular components of services.

In chapters VI and VII the impact of local party control is measured. Both the additive and mediative effects of party politics are examined in these chapters. The impact of party control on local economic policies is tested in chapter VI. The specific hypotheses tested are that the scale of economic intervention is influenced positively by Labour control and negatively by Conservative control. In chapter VII the impact of party control on changes in total spending is measured. The empirical analysis in this chapter tests the effect of both current party control and recent changes in party control.

The test of the party government model in chapter VII encompasses not only local but also central government. The relationship between central government grants and local policy outputs is investigated. The impact of different types of grants is measured within the context of a simultaneous equations model of local expenditure change. The specific hypotheses tested are that matching grants stimulate local spending and that lump sum grants substitute for local spending.

Chapter VIII analyses the implications of the empirical evidence. The overall quality of the evidence is assessed and then conclusions are drawn on the validity of the party government and rational choice models. Finally, the utility of the output studies approach to the explanation of local policy variation is reappraised.

Notes:

1. See for example B. Guy Peters, 'Social Change, Political Change and Public Policy: A Test Of A model', in R. Rose (ed) The Dynamics Of Public Policy (London, Sage, 1976); F. Castles (ed) The Impact of Parties (London, Sage, 1982). On the link between national and local output studies see L.J. Sharpe and K. Newton, Does Politics Matter? (Oxford, Clarendon Press, 1984).

2. See chapter II for a discussion of the aspects of Easton's model which are most relevant to local policy variation.

3. R. Rose, Do Parties Make A Difference? (London, McMillan, 1984).

4. M. Boddy and C. Fudge, (eds) Local Socialism? (London, McMillan, 1984).

5. R.J. Bennett, Central Grants To Local Governments (Cambridge, Cambridge University Press, 1982).

6. J. Stonecash, 'Assessing The Roles Of Politics and Wealth For Public Policy', Political Methodology, 6, (1979) 463-83;
J. Stonecash 'Politics, Wealth and Public Policy: The Significance Of Political Systems', Policy Studies Journal, 7 (1979) 670-75.

7. T. Hansen, 'Transforming Needs Into Expenditure Decisions', in K. Newton (ed) Urban Political Economy (London, Frances Pinter, 1981).

8. Stonecash 'Politics, Wealth and Public Policy: The Significance Of Political Systems' p672.

9. Hansen 'Transforming Needs Into Expenditure Decisions', p33.

10. See for example J. Elster (ed) Rational Choice (Oxford, Basil Blackwell, 1986); I. McLean Public Choice (Oxford, Basil Blackwell, 1987).

11. D. Mueller, Public Choice, (Cambridge, Cambridge University Press, 1979) p1.

12. A. Downs An Economic Theory Of Democracy (New York, Harper and Row, 1957).

13. Ibid., p28.

14. Sharpe and Newton, Does Politics Matter?

15. W. Niskanen, Bureaucracy and Representative Government (Chicago, Aldine Atherton, 1971).

16. Ibid., p36-7.

17. Ibid., p.30.

18. Ibid., p.25.

19. See O. Hellevik, Introduction To Causal Analysis (London, George Allen and Unwin, 1984).

20. It can also arise where political and constraint variables are positively related to each other and both are negatively related to policy outputs.

21. It can also arise where political and constraint variables are positively related to each other, but one is positively and one negatively related to policy outputs.

22. See R. Harre, Great Scientific Experiments (Oxford, Phaidon, 1981).

23. Another approach, where the number of cases is too small for statistical analysis, is to use the 'comparative' method. See J. Frendreis, 'Explanation of Variation and Defection of Covariation', Comparative Political Studies, 16, (1983), 255-72.

24. See the review of Sharpe and Newton's Does Politics Matter? by R. Rhodes in Political Studies, 32 (1984), 474. Rhodes describes output studies as 'one of those fashions in political science now relegated to the recesses of memory'.

25. See studies listed in the Appendix to this Chapter.

26. See studies 1, 2, 3, 4, 8, 10, 11, 16, 25 and 31 in the Appendix.

27. See studies 6, 9, 12 14, 15, 18, 19, 20, 24, 27 and 35 in the Appendix.

28. See studies 5, 7, 21, 23 and 29 in the Appendix.

29. See studies 13, 17, 22, 26, 28, 30, 33, 36 in the Appendix.

30. Sharpe and Newton, Does Politics Matter?

31. For example studies 17 and 22 in the Appendix.

32. In some studies there is simply a single sentence describing the political variable, with no discussion of the rationale for its selection. See especially studies 18, 28, 29 and 34 in the Appendix.

33. This table includes all analyses of local policy variations which test political variables, regardless of whether they are 'output studies' as defined in chapter II. Tables I and III in chapter II summarise the output studies results in more detail.

34. See for example studies 11, 25 and 31 in the Appendix.

35. See studies 4, 6, 9, 11 and 25 in the Appendix.

36. For example, Labour seats in 1965 are used to explain house building between 1945 and 1958 in study 1 in the Appendix. Some studies measure politics in the year after the budget is set. See studies 12, 14 and 21 in the Appendix. A similar problem occurs in studies which use average measures of politics over several years to explain policies in single years, for example explaining spending in 1975 by reference to years of Labour control between 1975 and 1980. Such lag structures are used in studies 8, 22 and 32 in the Appendix.

37. See studies 23, 29, 30 and 33.

38. See D. Fisk and R. Winnie, 'Output Measurement In Urban Government: Current Status and Likely Prospects', Social Science Quarterly, 55, (1974), 725-40.

39. See studies 28 and 31 in the Appendix.

40. Sharpe and Newton, Does Politics Matter?

41. This focus has been ascribed to political scientists' belief in the practical significance of representative democracy and professional commitment to 'their' variables. See T. Dye, Policy Analysis, (Alabama, University of Alabama Press, 1978).

42. It might be argued that outcomes and impact are much the same whether the mechanism is the market or politics. In this case it might just as reasonably be asked, 'do markets matter?'

APPENDIX: ANALYSES OF LOCAL POLICY VARIATION IN THE U.K.

1. N. Boaden and R. Alford, 'Sources of Diversity In English Local Government Decisions', Public Administration, 47, (1969), 203-23.

2. F. Oliver and J. Stanyer, 'Some Aspects Of The Financial Behaviour Of County Boroughs', Public Administration, 47, (1969), 169-84.

3. J. Alt, 'Some Social and Political Correlates Of County Borough Expenditures' British Journal Of Political Science, 1 (1971), 49-62.

4. N. Boaden, Urban Policy Making (Cambridge, Cambridge University Press, 1971).

5. B. Davies, A. Barton, I. McMillan and V. Williamson, Variations In Services For The Aged (London, G. Bell and Sons, 1971).

6. R. Nicholson and N. Topham, 'The Determinants Of Investment In Housing By Local Authorities: An Econometric Approach', Journal Of The Royal Statistical Society, Series A, 134, (1971), 273-303.

7. B. Davies, A. Barton and I. McMillan, Variations In Children's Services Among British Urban Authorities (London, G. Bell and Sons, 1972).

8. D. Ashford, 'Resources, Spending And Party Politics In British Local Government' Administration and Society, 7, (1975), 286-311.

9. R. Nicholson and N. Topham 'Urban Road Provision In England and Wales 1962-68', Policy and Politics, 4, (1975), 3-29.

10. D. Ashford, R. Berne and R. Schramm, 'The Expenditure - Financing Decision In British Local Government', Policy and Politics, 5, (1976), 5-24.

11. J. Danziger, Making Budgets London, Sage, 1978).

12. R. Jackman and M. Sellars, 'Local Expenditure and Local Discretion', Centre For Environmental Studies Review, May (1978), 63-73.

13. S. Pinch, 'Patterns Of Local Authority Housing Allocation In Greater London Between 1966 and 1973: An Inter-Borough Analysis', Transactions Of The Institute Of British Geographers, 3, (1978), 35-54.

14. J. Schofield 'Determinants Of Urban Service Expenditures - Fire And Social Services', Local Government Studies, 4, (1978), 65-79.

15. C. Foster, R. Jackman and R. Perlman, Local Government In A Unitary State (London, George Allen and Unwin, 1980).

16. E. Page, Comparing Local Expenditure: Lessons From A Multinational State, Studies In Public Policy No. 60, Centre For The Study Of Public Policy, University Of Strathclyde, 1980.

17. S. Pinch, 'Local Authority Provision For The Elderly: An Overview and Case Study Of London', in D. Herbert and R. Johnston (eds), Geography and The Urban Environment, Progress In Research and Applications Volume III, (London, John Wiley and Sons, 1980).

18. D. Storey 'The Economics Of Bureaux: The Case Of The London Boroughs 1970-76' Applied Economics, 12, (1980), 223-34.

19. K. Cuthbertson, J. Foreman-Peck and P. Gripaios 'A Model Of Local Authority Fiscal Behaviour', Public Finance, 36, (1981), 229-43.

20. R. Jackman and J. Papadachi, 'Local Authority Education Expenditure In England and Wales: Why Standards Differ And The Impact Of Government Grants' Public Choice, 36, (1981), 425-39.

21. A. Bebbington and B. Davies 'Patterns Of Social Service Provision For The Elderly', in A. Warnes (ed) Geographical Perspectives On The Elderly (London, John Wiley and Sons, 1982).

22. R. Bennett, Central Grants To Local Governments (Cambridge, Cambridge University Press, 1982).

23. B. Davies and E. Ferlie, 'Efficiency Promoting Innovation In Social Care: Social Service Departments And The Elderly' Policy and Politics, 10, (1982), 181-203.

24. J. Gibson, 'The Block (and Target) Grant System and Local Authority Expenditure - Theory and Evidence', Local Government Studies, 8, (1982) No. 3, 15-31.

25. T. Karran, 'Borough Politics And County Government: Administrative Styles In The Old Structure', Policy and Politics, 10, (1982), 317-42.

26. D. Lamont, 'The Determinants Of Council House Expenditure In Scotland: The Role Of Political Representation and Control', in A. Kirby and S. Pinch (eds), Public Provision And Politics, Reading Geographical Papers No. 80 (University of Reading, 1982).

27. M. Rickets, 'A Politico-Financial Model Of Local Authority Rents And Rate Fund Contributions In The UK', Public Choice, 39, (1982), 399-414.

28. R. Bennett, 'A Bureaucratic Model Of Local Government Tax And Expenditure Decisions', Applied Economics, 16 (1984), 257-68.

29. B. Davies and E. Ferlie 'Patterns Of Efficiency Improving Innovation: Social Care And The Elderly', Policy and Politics, 12, (1984), 281-95.

30. K. Hoggart, 'Political Parties And Local Authority Capital Investment In English Cities, 1966-71', Political Geography Quarterly, 3, (1984), 5-32.

31. L. Sharpe and K. Newton, Does Politics Matter? (Oxford, Clarendon Press, 1984).

32. K. Hoggart, 'Political Party Control And The Sale Of Local Authority Dwellings 1974-1983', Government and Policy, 3, (1985), 463-74. [Hoggart, 1985(a)].

33. K. Hoggart, 'Welsh Local Authority Employment Since 1979: Political Party Effects In Welsh District Councils', Regional Studies, 19, (1985), 447-57 [Hoggart, 1985(b)].

34. D. Jesson, J. Gray, S. Ranson and B. Jones, 'Some Determinants Of Variations In Expenditure On Secondary Education', Policy and Politics, 13, (1985), 359-31.

35. R. Barnett, 'Local Authority Expenditure Reactions To Losses In Grant Aid: The Case Of The Metropolitan District Councils', Government and Policy, 4, (1986), 131-43.

36. K. Hoggart, 'Does Politics Matter? Redistributive Policies In English Cities 1949-74', British Journal Of Political Science, 17, (1987), 359-84.

CHAPTER II

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Review Article: Theory, Methodology and Results in Political Science – The Case of Output Studies

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This review evaluates the success of output studies in explaining intra-national variation in the policies of local governments. Output studies address the central question of political science: why do different governments adopt different policies? It is therefore important to examine the contribution of output studies to our understanding of the reasons for policy variation and the role of politics within the relevant causal processes.

The review has three specific objectives. The first is to map the development of output studies research, the broad approach of which has been to explain local output variation in terms of the characteristics of political systems and their environment. The relative importance of environmental and political effects may be considered to fall between two positions. Firstly, it may be that members of the political system are so constrained by environmental conditions that no capacity to influence outputs remains. Such environmental determinism states that 'force of circumstance' dictates policy content. Secondly, it may be that members of the political system possess total autonomy to translate their preferences into policy outputs. Such political determinism states that dominant values dictate policy content regardless of environmental conditions. The results of most output studies support models of policy making which resemble environmental determinism rather than political determinism. In particular, early research in the United States found that output variation was largely the product of environmental rather than political conditions, as measured by the strength of statistical relationships.[1] The relatively weak effects established for political variables provoked controversy within American political science over issues such as 'politics versus economics' and 'does politics matter?' However, if the results of early output studies struck American political scientists with 'near panic'[2] then British political scientists have been 'struck' by near apathy. The first two such studies of British local government outputs were published in 1969 and since then only a further seventeen have appeared.[3]

The second objective of this review is to analyse the relationship between

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[1] For details of these results see Table 3.

[2] T. R. Dye, *Policy Analysis* (Alabama: University of Alabama Press, 1978).

[3] See Appendix B. Of this total of nineteen studies, nine stem from discipline bases other than political science – five from economics, two from geography and two from social administration. Of the remaining ten studies, four are by American political scientists.

theory, methodology and results in output studies. Critiques of British work mirror their American counterparts' concern with the 'improvement' of results for political variables.[4] However, the concern to operationalize political variables in a form which 'captures their full effect' has been at the expense of a broader concern with issues of theory and methodology. In these respects output studies are light on ideas and heavy on numbers which add up to very little. Most of the statistical results are unreliable because they are the product of testing models which are inconsistent with the underlying political theory. The critical dependence of results on the methodology used is not, of course, an issue unique to output studies[5] and this element of the review therefore has broader relevance to other areas of political science. Output studies research provides a particularly useful context for the analysis of the relationship between theory, methodology and results because of the large number of studies and the sustained use of the approach over three decades.

The third objective of the review is to indicate how output studies can be developed and applied more effectively as a method of explaining variations in local government policies. In order to improve the theory and methodology of output studies a more fundamental change is required than the simple respecification of political variables within the traditional framework. It is necessary to step outside the 'environment versus politics' paradigm by adopting a theoretical framework based on *the causal priority of politics*. It has been argued that 'there is an urgent need for developing a general theoretical framework in which future output research can be undertaken'.[6] The need is urgent, but it is not necessary to *develop* such a framework. Rather it is necessary to return to an *existing* framework: the systems model of David Easton.[7] The return to Easton's model involves 'drawing back to

[4] The major American critiques which show this concern are P. B. Coulter, 'Comparative Community Politics and Public Policy', *Polity*, III (1968), 22–43; J. H. Fenton and D. Chamberlayne, 'The Literature Dealing with the Relationships Between Political Processes, Socio-Economic Conditions and Public Policies in the American States: A Bibliographic Essay', *Polity*, IV (1969), 1388–404; J. Jacob and K. Lipsky, 'Outputs, Structure and Power: An Assessment of Changes in the Study of State and Local Politics', *Journal of Politics*, XXX (1968), 61–82; S. Rakoff and G. Schaeffer, 'Politics, Policy and Political Science: Theoretical Alternatives', *Politics and Society*, I (1970), 51–77; J. M. Munns, 'The Environment, Politics and Policy Literature: A Critique and Reformulation', *Western Political Quarterly*, XXVIII (1975), 646–67. British critiques which show the same concern are D. N. King 'Why Do Local Authority Rate Poundages Differ', *Public Administration*, LI (1973), 165–73; J. E. Alt, 'Politics and Expenditure Models', *Policy and Politics*, V (1977), 83–92; K. Newton and L. J. Sharpe, 'Local Outputs Research: Some Reflections and Proposals', *Policy and Politics*, V (1977), 61–82. The most recent British work states that an 'overriding objective has been to restore in output research the status of the political party' (Sharpe and Newton, see Appendix B).

[5] See J. P. Geise, 'Theory Construction and Political Inquiry', *Canadian Journal of Political Science*, IX (1976), 626–53.

[6] Newton and Sharpe, 'Local Outputs Research', p. 79.

[7] D. Easton, *The Political System* (New York: A. Knopf, 1953); 'An Approach to the Analysis of Political Systems', *World Politics*, IX (1957), 383–400; *A Framework for Political Analysis* (Chicago: University of Chicago Press, 1979); *A Systems Analysis of Political Life* (Chicago: University of Chicago Press, 1979).

leap forward' which, it has been argued, is characteristic of both scientific and biological evolution: 'in certain circumstances evolution can retrace its steps, as it were, along the path which led to the dead end, and make a fresh start in a new, more promising direction'.[8] In this case the 'drawing back' is to the principles of Easton's model which clearly assert the causal priority of politics. The 'leap forward' is to a methodology which directly applies Easton's model to the explanation of policy outputs.

The structure of the review is as follows:
Section I examines Dawson and Robinson's landmark study of the determinants of variations in welfare policies in the American states.[9] This merits close attention as the first published[10] study of intra-national policy variation from a political science perspective which evaluated statistically the relative importance of environmental and political variables. The Dawson and Robinson article is used as a reference point for the next four sections which examine subsequent developments in output studies in the United States and Britain.[11] Section II examines Easton's systems framework which forms the implicit theoretical base of many output studies. Those elements of Easton's framework which are of particular importance for the causal modelling of policy outputs are highlighted. Section III examines the conceptualization and measurement of political, environmental and policy variables. Section IV examines the form of the models specified in output studies and the statistical techniques used to estimate the relative importance of environmental and political variables and their combined explanatory power. Section V examines the results of output studies in the context of the theoretical and methodological issues raised in previous sections.

Only studies which test the effect of *both* environmental and political variables are considered in this discussion. A large number of econometric analyses of expenditure variation have been undertaken, both prior and subsequent to the advent of output studies in political science.[12] The omission

[8] A. Koestler, *The Ghost in the Machine* (London: Pan, 1975).

[9] Dawson and Robinson, see Appendix A.

[10] J. H. Fenton claims that he is the unheralded pathbreaker in this field. See Fenton and Chamberlayne, 'The Literature Dealing with the Relationships Between Political Processes', p. 389. Others could claim to have been performing output studies without knowing it – see, for example, Hawley, Appendix A.

[11] On output studies in Europe see M. Aiken and R. Depre, 'The Urban System, Politics and Policies in Belgian Cities', in K. Newton, ed., *Urban Political Economy* (London: Frances Pinter, 1981). On Canada see D. Falcone and W. Mishler, 'Legislative Determinants of Provincial Health Policy in Canada', *Journal of Politics*, IXL (1977), 345–67; D. H. Poel, 'The Diffusion of Legislation among the Canadian Provinces: A Statistical Analysis', *Canadian Journal of Political Science*, IX (1976), 604–26. On Israel see E. Torgovnik, 'Local Policy Determinants in a Centrist System', *Publius*, VII (1977), 61–84, and 'Central Aid and Local Policy', *Public Finance Quarterly*, VI (1978), 211–39.

[12] See J. W. Foley, *A Comparative Study of the Determinants of Public Policies* (Cornell University, Program in Urban and Regional Studies, Occasional Paper 9.) For a discussion of studies of output variation in Britain which do not include political variables see K. Newton, 'Community Performance in Britain', *Current Sociology*, XXIV (1976), 49–86.

of political variables means that this econometric literature is of little theoretical interest. However several methodological points of relevance to the politometric[13] analysis of output variation are contained within it and are noted where appropriate.

I. DAWSON AND ROBINSON

Dawson and Robinson's analysis of influences on state welfare expenditures is frequently cited as a 'pathbreaker' in output studies. Hofferbert argues that the article had three major effects.[14] Firstly, it demonstrated the potential for hypotheses to be tested on a comparative basis across sub-national units of government. Secondly, it questioned the relevance of variables traditionally believed to be important within political science. Thirdly, it increased awareness of the importance of the socio-economic context of the policy process. In sum, Dawson and Robinson not only established local output variation as an issue for political science research but also set the tone in the field by raising the question of the relative importance of environmental and political variables. It is therefore important to examine their theory, methodology and results.

Theory

Dawson and Robinson's analysis was prefaced by a brief discussion of Easton's systems framework. However the application of the framework was not an explicit concern and did not inform their analysis. Rather their initial concern was to test the 'Key/Lockard' hypothesis that inter-party competition (IPC) is positively related to policies which are favourable to lower income groups. The hypothesis is based on the argument that in competitive party systems politicians must seek the lower class vote in order to gain/keep office.[15] Dawson and Robinson tested this hypothesis statistically on a cross sectional basis. However this was not the most novel aspect of their analysis. Rather their major innovation was to take the additional step of testing whether the relationship between IPC and outputs is spurious by controlling for environmental conditions which might cause both.

Political, environmental and policy variables. To operationalize the political system the level of IPC within each state was measured.[16] To operationalize the environment Dawson and Robinson measured per capita income, indus-

[13] The term is from G. Hilton, *Intermediate Politometrics* (New York: Columbia University Press, 1976).

[14] R. I. Hofferbert, 'State and Community Policy Studies', in J. A. Robinson, ed., *Political Science Annual Volume III* (New York: Bobbs Merrill, 1972).

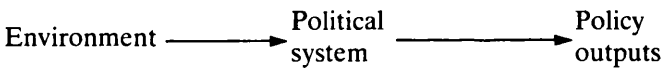
[15] The hypothesis rests on a number of assumptions about the composition and values of the electorate and the behaviour of politicians. These assumptions have been given detailed consideration in the rational choice literature. See Brian Barry, *Sociologists, Economists and Democracy* (Chicago: University of Chicago Press, 1970).

[16] IPC is specified by averaging three measures of majority party success over a 21-year period: percentage of votes for the governor, percentage of state senate seats and percentage of state house seats.

trialization and urbanization in each state. They noted that each environmental variable measures 'a complex of factors'[17] and is, in effect, not a single indicator but a 'background variable' which picks up elements of a variety of conditions. Only per capita income was used in the test of the relative importance of the environment and politics. However, given Dawson and Robinson's argument that per capita income reflects a number of dimensions of the environment the dice already seem to be loaded against the single dimension of the political system, IPC. To operationalize 'policy' four tax and five expenditure levels were used to measure 'welfare policies which redistribute wealth'. Only three of these were used as dependent variables in testing the relative importance of the environment and politics: education expenditure per pupil, unemployment benefit per recipient and old age assistance per recipient.

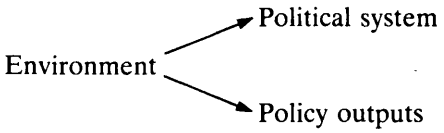
Model specification and statistical technique. No explicit formal model of the relationship between the variables was specified prior to the statistical tests. The statistical technique used to evaluate the relative importance of the environment and politics was partial correlation of the rank order scores of the states on each variable. Partial correlations were computed between IPC and expenditures controlling for per capita income and between per capita income and expenditures controlling for IPC.

Cnudde and McCrone[18] have argued that these partial correlations may be interpreted as intending to distinguish between three formal models. The first is the 'development sequence' model:



In this model the environment shapes the political system but has no direct or independent effect on outputs. The political system, however, has such a direct and independent effect. The statistical criterion of support for this model is that a control for IPC eradicates the effect of per capita income, yielding a partial correlation between per capita income and expenditures which is insignificant.

The second model is the 'spurious' model:



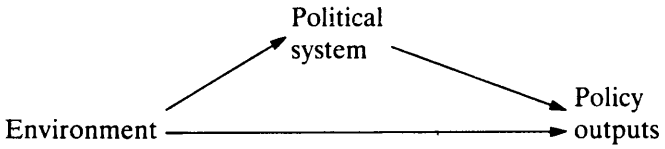
In this model the environment both shapes the political system and directly affects outputs while the political system has no independent effect. The statistical criterion of support for this model is that a control for per capita

[17] Dawson and Robinson, p. 280, Appendix A. Problems of employing such background variables in statistical analysis are discussed in H. M. Blalock, *Causal Inferences in Non-Experimental Research* (Chapel Hill: University of North Carolina Press, 1964).

[18] C. F. Cnudde and D. J. McCrone, Appendix A.

income eradicates the effect of IPC, yielding a partial correlation between IPC and expenditures, which is insignificant.

Cnudde and McCrone label the third model as the 'hybrid' model:

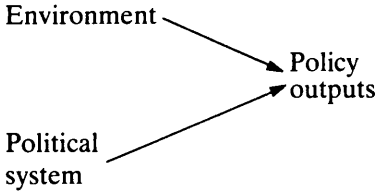


In this model the environment both shapes the political system and directly affects outputs while the political system also has a direct effect on outputs. The statistical criterion of support for this model is that a control for either independent variable does not eradicate the effect of the other.

Results. Dawson and Robinson found strong zero-order correlations between per capita income and IPC, per capita income and expenditures, and IPC and expenditures. The control for per capita income greatly reduced, but did not eradicate, the correlation between IPC and expenditures. The control for IPC slightly reduced the correlation between per capita income and expenditures. Thus the results indicate that the effect of per capita income outweighs that of IPC. Dawson and Robinson draw a suitably circumspect conclusion: 'the evidence points to the relatively greater influence of certain external conditions over one aspect of the political process in the formulation of selected policies'.[19]

Other early studies are careful to note that their results simply indicate that environmental variables are more important than political variables for specific outputs. However subsequent interpretations of these early studies have mistakenly stated that controls for environmental variables caused political effects to *disappear*.[20] This has added unnecessary heat to the 'environment versus politics' issue in output studies and has drawn attention away from more fundamental questions of theory and methodology.

Dawson and Robinson's results are consistent with the 'hybrid' model because they show that both the environment and politics affect outputs. However the basis of their evaluation of the relative importance of the environment and politics means that it is yet a fourth model which underlies their conclusions. This may be labelled the 'direct effects' model:



It is this model which is implicit in their conclusions because they evaluate the relative importance of IPC and per capita income on the basis only of their

[19] Dawson and Robinson, p. 289, Appendix A.

[20] For example Cowart, Fry and Winters, Baer and Jaros, Appendix A.

direct effects on expenditures. The *indirect* effect of the environment on outputs, which operates through the political system in the hybrid model, is ignored.

It is essential in discussing output studies to make the implicit direct effects model explicit. For this model underlies most of the results which indicate the relative importance of environmental and political variables, and their combined explanatory power, both in the United States and Britain. However the model is quite inconsistent with Easton's systems theory, not only because it omits the indirect effect of the environment but also because it includes a direct effect of the environment on outputs. It is argued below that the use of this implicit model is a primary cause of the invalidity of the statistical results in output studies.

II. THEORY

Many output studies are, at least implicitly, intended to operationalize Easton's systems framework. However it has often been noted that the framework does not properly underpin the statistical analyses but is 'merely an appendage'.[21] No other 'general' theory has been used in place of Easton's as a base in output studies. While a number of 'partial' theories have underpinned the use of particular political variables in specific studies[22] the atheoretical nature of most studies is reflected in *ad hoc* hypotheses or in a complete absence of hypotheses and explanations of results. There may be advantages in testing hypotheses on an *ad hoc* or even on a 'counterinductive' basis.[23] However to test for relationships between variables on *no basis whatsoever* is indefensible. In the absence of a theoretical context the results are literally meaningless.

The general characteristics of Easton's model are so well known that a lengthy discussion here is unnecessary.[24] The basic form of the model is shown in Figure 1.

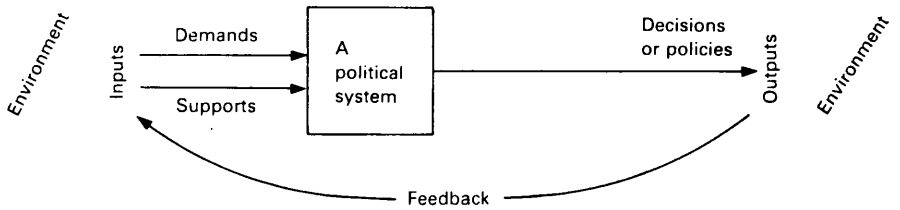


Fig. 1. The basic systems model

[21] See American critiques in footnote 4.

[22] See discussion of political variables in Section III below.

[23] P. Feyerabend, *Against Method* (London: Verso, 1975).

[24] A useful summary of the concepts and their inter-relationship is provided in P. Hall, H. Land, R. Parker and A. Webb, *Change, Choice and Conflict in Social Policy* (London: Heinemann, 1976). For more critical discussion see J. D. Astin, 'Easton I and Easton II', *Western Political Quarterly*, IV (1972), 726–38; P. Leslie, 'General Theory in Political Science: A Critique of Easton's Systems Theory', *British Journal of Political Science*, II (1972), 155–72; J. S. Sozarno, 'David Easton and The Invisible Hand', *American Political Science Review*, LXIX (1975), 91–106.

The following five elements of the model as initially outlined and subsequently developed are of particular relevance to output studies.

(1) A Theory of Policy Determination?

Easton states that the model is not 'a theory in the full blown sense of the term' but simply a 'conceptual structure'.[25] Therefore the model 'will not help us to understand why any *specific* policies are adopted'.[26] The general form in which Easton presents this 'conceptual structure' reflects his concern with a question which is more fundamental than the outputs of particular systems: 'How does it come about that any kind of system can persist at all, even under the pressure of frequent or constant crises?'[27] This he regards as the 'central problem of empirical political theory'.[28] However, while the model yields no testable hypotheses in its general form it does posit causal relationships between three categories of variable: the environment, the political system and policies. The model thereby indicates that the sources of public policy are the characteristics of the environment and the internal characteristics of the political system. If the relevant environmental and political characteristics are located and measured then the model can be operationalized to test hypotheses concerning the determinants of specific policies. Further, the very generality of Easton's model allows great flexibility in the type of variables used in output studies. A major advantage of the systems framework is that while it provides a theoretical ordering for general categories of variable, it does not precondition the selection of independent variables towards any specific environmental or political influences. This flexibility can be contrasted favourably with 'partial' theories of policy determination which test specific variables in isolation (e.g. incrementalism, rational choice theories of party and bureaucratic behaviour). When the systems framework is specified in an appropriate statistical model the variables assumed to be important by these partial theories can be tested while controlling for other influences on policies.

(2) The Boundary Between the Environment and the Political System

If the environmental and political determinants of policies are to be identified and their relative importance evaluated then it is necessary to distinguish clearly between the two categories of variable. However, there is some ambiguity in Easton's work concerning the distinction between the environment and the political system. Without entering a discussion of 'What Easton Really Said', it is important to clarify this point so that effects may be attributed to the appropriate category of variable.

[25] *A Systems Analysis of Political Life*, Preface xiv.
[26] *A Framework for Political Analysis*, p. 89 (emphasis added).
[27] *A Systems Analysis of Political Life*, Preface xiv.
[28] *A Systems Analysis of Political Life*, Preface xiv.

Firstly, Easton's diagrammatic presentation of the model (Figure 1) and some written passages[29] imply that demands and supports are outside the system and, by definition, in the environment.

Secondly, however, Easton's definition of politics states that demands and supports are *within* the system. Easton defines politics as activity directed towards influencing public policy ('the authoritative allocation of values'). A political system therefore consists of all those activities which 'bear some relevance to the way in which policy for a society is created and effectuated'.[30]

Under this definition demands and supports are clearly part of the system itself.

Passages which imply that demands and supports are external to the system may simply be the result of imprecision in the use of terms in the course of Easton's lengthy elaboration of the model. Since the definition of politics provides the more precise interpretation of the location of demands and supports it seems more appropriate to attribute their effects to the political rather than the environmental category.

(3) The Relationship Between the Environment and Policy Outputs

In Easton's model the effect of all environmental conditions or 'events' is mediated by the political system. Information about the environment is communicated to policy makers through the two 'summary variables' of demands and supports.[31] Thus in order to influence outputs environmental conditions must first be incorporated within inputs. It is inputs which 'bridge the gap between the political and non-political sectors of life and ... are therefore also vital for helping us to understand the way in which transformations in one affect the other'.[32]

(4) The Autonomy of the System from the Environment

Easton argues that the political system is an 'open' system and that environmental events therefore 'shape the conditions under which the members of the system must act'.[33] However, the political mediation of environmental conditions noted in Section (3) above indicates that members of the system are autonomous from their environment. 'Members of a political system need not sit back ... to accept stress supinely, through some mechanistically conceived way of adapting to changes taking place in the environment.'[34]

Therefore, while the environment may provide constraints and opportunities there is no *necessary* direct connection between environmental conditions

[29] See, for example, the passage quoted from *A Systems Analysis of Political Life*, p. 133, in the discussion of 'The Autonomy of the Authorities' below.

[30] *The Political System*, p. 158.

[31] *A Systems Analysis of Political Life*, pp. 25–7.

[32] *A Systems Analysis of Political Life*, p. 53.

[33] *A Systems Analysis of Political Life*, p. 18.

[34] *A Framework for Political Analysis*, p. 99.

and the behaviour of members of the system. By extension, there is no necessary indirect connection between environmental conditions and policy outputs through the behaviour of members of the system.

(5) The Autonomy of the Authorities from Demands and Supports

In a manner similar to that in which environmental conditions are mediated by the political system, inputs are mediated by the authorities. Easton argues that 'Demands and Supports can be moulded to the purposes and desires of members of the system to the extent that knowledge, resources and inclination permit'.[35] Thus policy makers can be autonomous from demands and supports. This autonomy is revealed in the 'conversion process' during which 'Demands just do not suddenly become transformed into outputs nor are they just inexplicably blocked'.[36] In addition to their capacity to 'mould' inputs policy makers possess further autonomy. This stems from their capacity to influence policies *independently* of the characteristics of demands and supports. Easton refers to this independent activity of policy makers as 'withinputs'.[37]

Properties 3–5 noted above are taken here as untestable assumptions or 'axioms'.[38] For example, the assumption that environmental conditions cannot of themselves produce policies is not directly testable. However, from these axioms specific testable hypotheses may be deduced, for example:

(*a*) political systems which possess similar internal characteristics but face different environmental conditions will produce different policies;
(*b*) political systems which possess different internal characteristics but face similar environmental conditions will produce different policies;
(*c*) political systems which possess similar internal characteristics and face similar environmental conditions will produce similar policies.

Such testable hypotheses which can be deduced from Easton's theory are at the heart of output studies. However, elements of this theory have often been

[35] *A Framework for Political Analysis*, p. 133.

[36] *A Systems Analysis of Political Life*, p. 72.

[37] *A Systems Analysis of Political Life*, p. 389. It is important to note that the 'relative autonomy' variant of Marxist theory refers to a conception of autonomy which is different from that outlined here. Relative autonomy concerns freedom of state action only from the short-term political constraints imposed by 'fractions of capital' who fail, unlike state policy makers, to see the long-term interests of capital as a whole. (To the extent that state policy makers are not consciously omniscient then some 'true unconsciousness' must presumably be at work.) However, the state possesses no such relative autonomy from the long-term 'structural requirements' of capital. For a discussion of state autonomy in general and the Marxist concept of relative autonomy in particular see A. E. Nordlinger, *On the Autonomy of the Democratic State* (Cambridge, Mass.: Harvard University Press, 1981). For a crude Marxist application of the relative autonomy concept at the local level see C. Cockburn, *The Local State* (London: Pluto Press, 1977).

[38] On the role of axioms in the development of theories see H. M. Blalock, *Theory Construction* (Englewood Cliffs, N.J.: Prentice Hall, 1969).

omitted or badly distorted when it has been operationalized in empirical analyses of policy determinants.

Echoes of the discordant relationship between theory and methodology in output studies are loudest in the repeated criticisms of studies, such as Dawson and Robinson, which claim to find a direct effect of the environment on policies. As noted in Section I, Dawson and Robinson's analysis includes a brief discussion of Easton's model. However their interpretation of the results from the implicit 'direct effects' model is inconsistent with Easton's model which states that the influence of environmental conditions is only indirect, through the medium of political actions which interpret and respond to such conditions.[39] In short, environmental reality is politically constructed;[40] there are no environmental 'facts' which inexorably determine policy outputs.

In interpreting their statistical result which shows a direct effect Dawson and Robinson simply state that in addition to an indirect effect through the political system, environmental variables 'might also affect policy directly, *without being mediated by process variables*'.[41] This is an unfortunate phrase which expresses an idea that is not tenable in the context of Easton's model. It is also an idea which has been seized upon repeatedly by critics who berate output studies for failing to explain *how* environmental conditions effect outputs.[42] However, these critics have simultaneously overemphasized this point while offering no practical suggestion for the construction of statistical models which omit the direct effect.

Too much has been made of the point because, in contrast to Dawson and Robinson, many studies offer some substantive political explanation for the direct statistical relationship between the environment and policies. For example it has been argued that the apparent direct link indicates that the 'conversion process' operates to a similar effect in all systems.[43] Dye argues

[39] Similar arguments are contained in other areas of political theory. For example, Schattschneider argues that the definition of conditions as 'issues' of legitimate relevance to political action is 'the supreme instrument of power'. See E. E. Schattschneider, *The Semi-Sovereign People* (New York: Holt, Rinehart & Winston, 1964). This argument has also been prominent in the recent boom in 'values' literature. See, for example, K. Young, 'Values in the Policy Process', *Policy and Politics*, v (1977), 1–22. An early application of the values perspective in output studies is Elau and Eyestone, Appendix A. The perspective has been developed most explicitly in the context of output studies by T. Hansen, 'Transforming Needs into Expenditure Decisions' in Newton, ed., *Urban Political Economy*.

However, while Hansen departs from this point he arrives at very different conclusions from this discussion. Hansen specifies a model analogous to that considered in the discussion of the estimation of interaction effects through sub-groups in Section IV below.

[40] The phrase is adapted from T. Berger and K. Luckman, *The Social Construction of Reality* (New York: Doubleday, 1966). For a more specific application of their argument to the relationship between organizations and their environment see D. Silverman, *The Theory of Organisations* (London: Heinemann, 1970).

[41] Dawson and Robinson, p. 266, Appendix A (emphasis added).

[42] See American critiques in footnote 4.

[43] Dye (b), Appendix A; Grumm, Appendix A; R. I. Hofferbert, 'Ecological Development and Policy Change in the American States', *Mid-Western Journal of Political Science*, x (1966), 464–83; and 'Elite Influence in State Policy Formation', *Polity*, II (1970), 316–44.

that even where the statistical results indicate that the direct environment–policy link is more important than the politics–policy link 'public policy is still formulated through the political system, but ... the character of that system does not independently influence policy outcomes'.[44] An alternative interpretation of the direct statistical relationship which has been offered is that the environmental variables are proxy measures of inputs.[45] This interpretation removes the whole basis of the environment versus politics controversy because all variables are designated as political. When environmental variables are conceptualized in this way it is inputs which are interpreted as being mediated in a uniform way across all political systems. However studies which advocate[46] or adopt[47] this formulation imply an 'input determinism' which is as unacceptable as the environmental determinism which they seek to displace. A direct effect for inputs is no more consistent with Easton's theory than is a direct effect for the environment.

Both of the above interpretations of the direct effect of the environment on outputs seek to rationalize the statistical results. In effect, the statistical results have been taken to imply that there *must* be some substantive interpretation consistent with the conclusion that environmental variables are more important than political variables. It is a nice example of the tail chasing which follows if statistical techniques lead theory rather than vice versa. Several critiques have sought to re-establish the primacy of theory in output studies. However they have failed to suggest how the direct effect of the environment can be dealt with in practical model building in a way which is theoretically intelligible. For example Rackoff and Schaeffer and Munns[48] expend considerable effort in discussing the theoretical relationships between concepts in a format which is remarkably reminiscent of Easton. However, both are silent on how their ideas can be converted into a formal statistical model. Had they proceeded along this route they might have recognized that the direct environment–policy link is a product of specification error. Only Cnudde and McCrone and Swant have hinted that the direct effect in statistical results is nonsense and that *post hoc* rationalizations of its existence

[44] Dye (b), p. 5, Appendix A.

[45] Dye (c), Appendix A. This approach is also used by O. A. Davies, 'Empirical Evidence of Political Influences upon the Expenditure Policies of Public Schools', in J. Margolis, ed., *The Public Economy of Urban Communities* (Washington, D.C.: Resources of the Future Inc., 1965) and O. A. Davies and C. H. Haines, 'A Political Approach to a Theory of Public Expenditure: The Case of Municipalities', *National Tax Journal*, XIX (1966), 259–75. On the dangers of inferring attitudinal and behavioural characteristics from socio-economic data see J. Obler, 'The Dubious Link Between Democratic Politics and Redistributive Fiscal Policies' in T. R. Dye and V. Gray, eds, *The Determinants of Public Policy* (Lexington, Mass.: Lexington, 1980).

[46] See R. K. Godwin and W. B. Shepard, 'Political Processes and Public Expenditures: A Re-examination Based on Theories of Representative Government', *American Political Science Review*, LXX (1976), 1127–35; J. Stonecash, 'Assessing the Roles of Politics and Wealth for Public Policy', *Political Methodology*, VI (1979), 463–83.

[47] Stonecash and Hayes, Appendix A.

[48] Rackoff and Schaeffer, 'Politics, Policy and Political Science: Theoretical Alternatives'; Munns, 'The Environment, Politics and Policy Literature: A Critique and Reformulation'.

evade the fundamental issue of how to specify a model which is consistent with theory and therefore does not include this direct effect.[49] The form of statistical model which is required to reflect Easton's theory is shown in Section IV.

III. POLITICAL, ENVIRONMENTAL AND POLICY VARIABLES

Developments in variable selection and specification following Dawson and Robinson can be seen in part as a quest for the impact of politics. While Dye's argument concerning 'panic responses' is overstated there was certainly some embarrassing floundering in the wake of results suggesting that environmental effects outweighed political effects. For example, Lockard first attempted to refute output studies results by reference to isolated case studies and finally resorted to anecdotal evidence from his 'own intermittent [political] activity in Connecticut'.[50] Researchers operating within the output studies approach have concentrated their efforts on the operationalization of politics and policies. By contrast the operationalization of the environment and questions of model specification and statistical techniques have received little attention.

Political Variables

Early criticisms of output studies[51] attacked the use of a narrow range of political variables which measured only formal aspects of the political system. Subsequent studies have used a vast array of variables, drawing on many areas within political science. These variables are compressed into ten general and twenty-eight specific categories in Table 1. The symbol (*) indicates in which studies variables have been used. The range of political variables in output studies is a monument to the ingenuity of American political scientists in quantifying political concepts. Many American output studies have either tested an additional political variable or respecified a political variable used previously. By contrast the range of political variables in British output studies is quite narrow. Most fall into the 'parties and elections' category, with an emphasis on aspects of Labour party power in particular.[52] This restricted range of political variables is more reflective of research interests and resources in British political science than of the difficulty of applying the measures used in American studies to British local government. The empty column spaces in the British section of Table 1 constitute a research agenda in themselves.

[49] C. F. Cnudde and D. J. McCrone, Appendix A; F. Swant, 'Linking Theory and Method in Urban Policy Analysis: Problems of Test Interpretation', *Political Methodology*, IV (1977), 333–46.

[50] D. Lockard, p. 212, Appendix A.

[51] Coulter, 'Comparative Community Politics and Public Policy'; Jacob and Lipsky, 'Outputs, Structure and Power: An Assessment of Changes in the Study of State and Local Politics'.

[52] The case for testing for a 'party of the right' effect has been argued by F. G. Castles and R. D. McKinlay, 'Public Welfare Provision, Scandinavia and the Sheer Futility of the Sociological Approach to Politics', *British Journal of Political Science*, IX (1979), 157–71. For tests of the effect of Conservative/Independent variables in Britain see Sharpe and Newton, Appendix B.

TABLE I *Political Variables and Statistical Techniques in Output Studies*

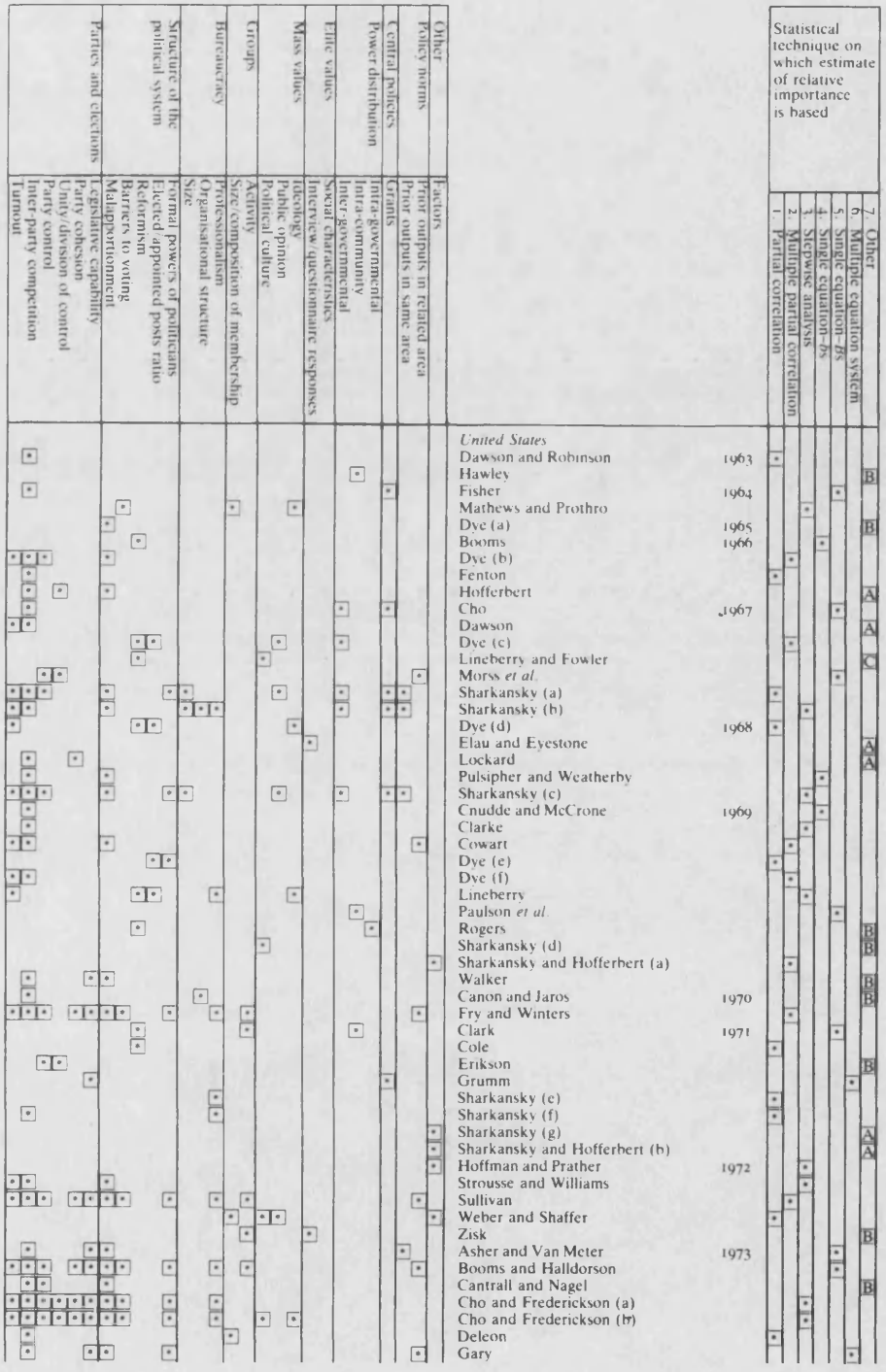


TABLE I *(continued)*

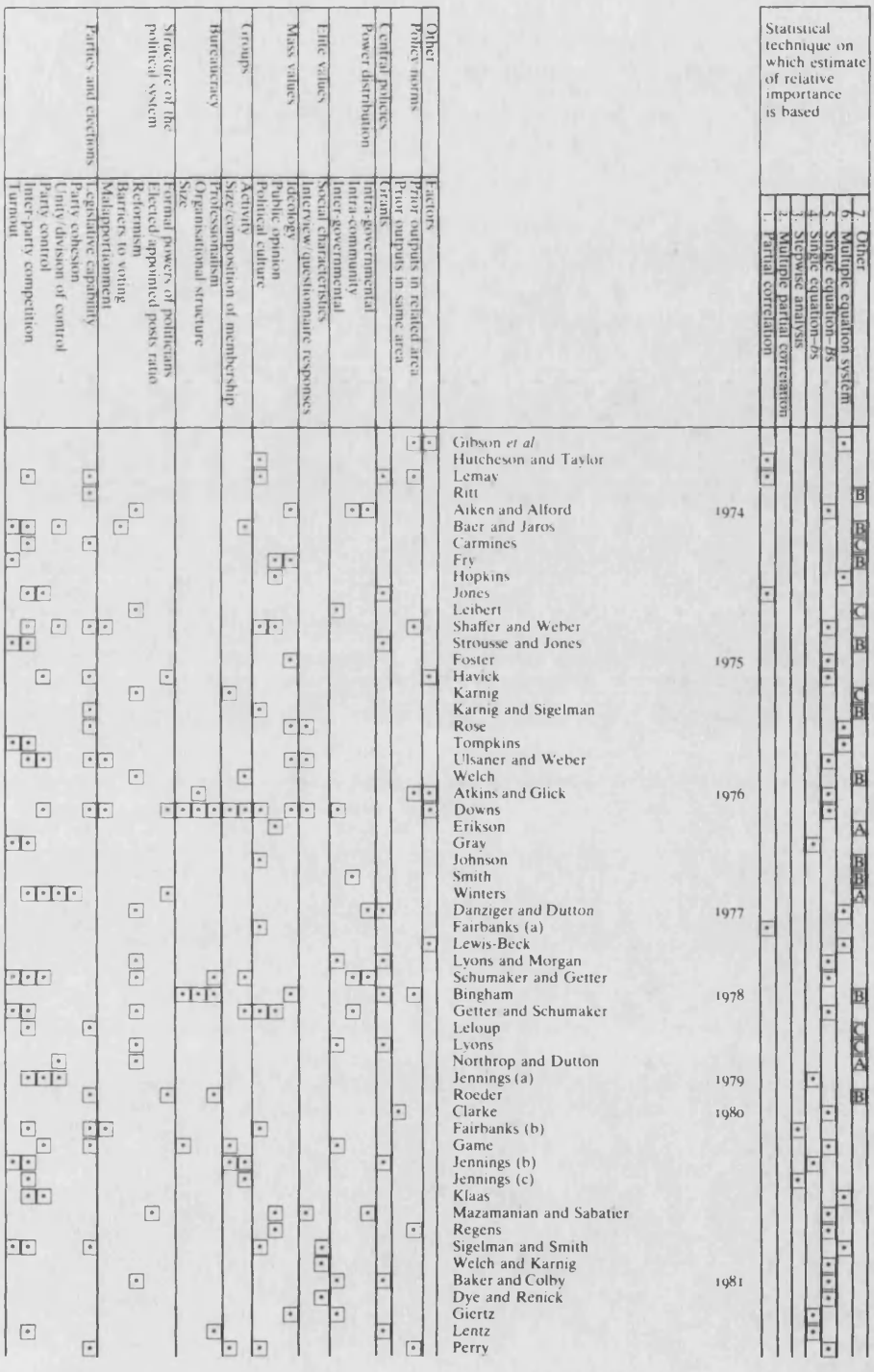
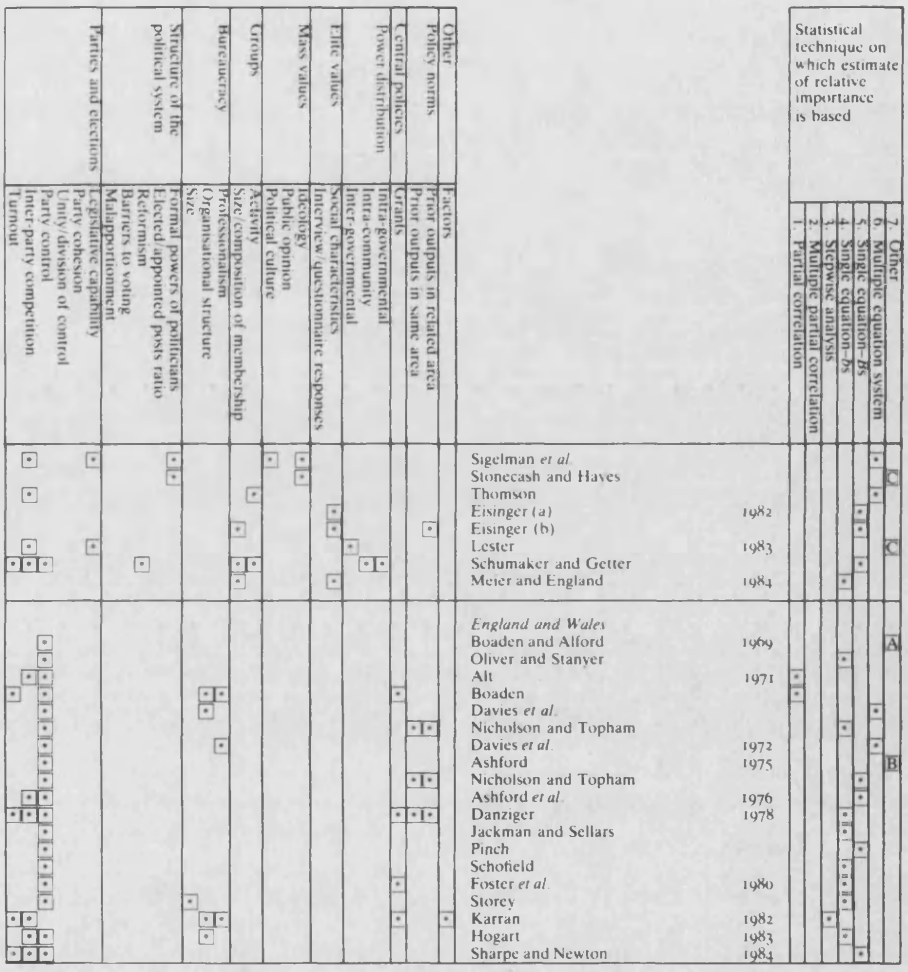


TABLE I (*continued*)



While the quantification of political concepts in output studies is impressive, the way in which the variables specified have been used is much less so. It is unusual to find a discussion of why any particular political variable is expected to be related to a specific output. For example, the most commonly used variable in American output studies, IPC, is tested without consideration of whether parties actually compete on the policy area under consideration.[53] A similar *ad hoc* approach is evident in 'fishing expeditions'

[53] The best critiques of the use of IPC in output studies are D. Riley, 'Party Competition and State Policy Making: The Need for a Re-examination', *Western Political Quarterly*, XXIV (1971), 510–13, and E. T. Jennings (a), Appendix A. Debates concerning the conceptualization and measurement of other political variables are few. Readers interested in particular variables should refer to the studies indicated under the variable headings in Table I.

which cast a wide net of political variables in the hope of catching some outputs. For example, Cho and Frederickson[54] begin with forty-two political variables, ultimately selecting the 'best' six on the basis of a statistical criterion. Unhappily, this approach has recently spread to Britain.[55] More broadly, the atheoretical basis of the selection of political variables is reflected in the absence of consideration of the structure of relationships amongst them. Measures of inputs, the structure of the political system, and policy makers' behaviour have all been crammed in alongside one another, all competing for a significant place in the direct effects model.

Environmental Variables

The range of environmental variables in output studies is even wider than the range of political variables. Dimensions of the environment operationalized in American studies include geographic conditions (e.g. region,[56] land area), demographic conditions (e.g. size and age composition of population), economic conditions (e.g. size and composition of tax base, employment, type of local economy, income inequality) and social conditions (e.g. class, race, religion,[57] education). The range of environmental variables in British studies has been only slightly narrower, culled largely from census data.

The use of environmental variables has been even more *ad hoc* than the use of political variables. Presence in an official publication almost guarantees output studies status for a measure of an environmental condition. Again, fishing expeditions are not uncommon and it is normal to see the same environmental variables tested regardless of the output. For example, Dye tests the same four environmental variables on *fifty-four* different outputs.[58] This approach has also been used in British studies.[59] However there is some tendency for more recent American studies to be more specific in their variable selection and more explicit in their hypotheses, for example, testing pollution level on anti-pollution expenditures and energy consumption on energy conservation policies.[60]

The selection of appropriate environmental variables is an aspect of output studies which has been badly neglected. It seems likely that more careful

[54] Y. H. Cho and G. Frederickson (a), Appendix A.

[55] L. J. Sharpe and K. Newton, Appendix B.

[56] There has been some debate about whether region should be used as an environmental or as a political variable. See I. Sharkansky, 'Regionalism, Economic Status and the Public Policies of American States', *Southwestern Social Science Quarterly* (1968), 9–26. Two recent examples of the explicit use of region as a political variable are R. Hanson 'The Content of Welfare Policy: The States and Aid to Familes with Dependent Children', *Journal of Politics*, XLV (1983), 771–85; L. Sigelman, D. Lowery and R. Smith, 'The Tax Revolt: A Comparative State Analysis', *Western Political Quarterly*, XXXVI (1983), 30–51.

[57] Religion has also been used as a measure of political culture. See Hutcheson and Taylor, Fairbanks (a) and (b), Appendix A.

[58] Dye (b), Appendix A.

[59] See Danziger, Sharpe and Newton, Appendix B.

[60] Lester, Regens, Perry, Appendix A.

identification of environmental variables *relevant to specific outputs* would boost the explanatory power of the models. The blunderbuss technique of firing any available official statistic at every policy variable should be abandoned.

Policies

Criticisms of the policy variables in output studies have concerned the focus on financial outputs[61] and the absence of 'multidimensional' measures of policies.[62]

It has been frequently argued that the use of financial measures as dependent variables preconditions output studies results in favour of environmental variables. In particular the use of total expenditure and aggregate functional expenditures (education, roads, welfare, etc.) as policy measures favours economic variables because resources are a necessary condition of expenditure. It has been argued that stronger political effects should be expected where outputs are less tied to resource availability, such as expenditure on sub-functions,[63] redistribution of resources between social groups[64] and 'symbolic' policies.[65] However, while a variety of non-financial outputs have been analysed, financial outputs remain the most frequently used dependent variables (see Table 3 below). Non-financial outputs in American output studies include redistribution, responsiveness, innovativeness and the presence or extent of particular policies, for example, anti-pollution and energy conservation measures, employment of minorities, de-institutionalization of young offenders and the mentally handicapped.[66] British studies have concentrated on aggregate functional expenditures, the only exceptions being some sub-function expenditures, staffing levels and non-financial measures of housing and education outputs.[67] Again, the restricted range of dependent variables in British output studies constitutes a research agenda in itself.

[61] See American critiques, footnote 4.

[62] E. Ostrom, 'The Need for Multiple Indicators in Measuring the Output of Public Agencies', *Policy Studies Journal*, II (1973), 85–92; Munns, 'The Environment, Politics and Policy Literature: A Critique and Reformulation'. For a general review of problems in the measurement of 'policy', see D. G. Greenberg, J. A. Miller, L. B. Mohr and B. C. Vladeck, 'Developing Public Policy Theory: Perspectives from Empirical Research', *American Political Science Review*, LXXI (1977), 1532–43.

[63] See Ashford, Danziger, Sharpe and Newton, Appendix B; G. C. Edwards, 'Disaggregation in Public Policy Research', in Dye and Gray, *The Determinants of Public Policy*.

[64] Fry and Winters, Appendix A.

[65] J. W. Clarke, Appendix A. For a broader discussion of the importance of symbolic policies see M. Edelman, *The Symbolic Uses of Politics* (Illinois: University of Illinois, 1964).

[66] See Lester, Perry, Dye and Renick, Eisinger, Downs, Sigelman *et al.*, Appendix A.

[67] These sub-function results are analysed in G. A. Boyne, 'Output Disaggregation and The Quest for the Impact of Local Politics', *Political Studies*, XXXII (1984), 451–58. On staffing levels see Storey, Appendix B; on housing see Boaden, Alt, Appendix B; on Education see Boaden and Alford, Boaden, Appendix B.

Part of the argument in favour of multidimensional measures of policy is that output studies should analyse the impact of policies ('outcomes'). While several studies have included such measures amongst their dependent variables[68] they are not to be commended for this. It has been shown that the correlation between outputs (measured as expenditure levels) and impact (measured as service quality) is very weak.[69] This indicates that we are dealing with two quite separate dependent variables which reflect very different dimensions of policy. Therefore it must be emphasized that the type of independent variables and models necessary to explain policy impact may be quite different from that necessary to explain the formal policy commitments indicated by output measures.

In modelling policy outputs the task is to operationalize theories of policy formulation. By contrast, in modelling policy impact the task is to operationalize theories of implementation.[70] In these latter models the outputs themselves constitute an element of the set of independent variables. Therefore it is important to specify separate models for outputs and impact. The inappropriate selection of measures of policy impact as dependent variables unnecessarily confuses the question of the utility of output studies models.

IV. MODEL SPECIFICATION AND STATISTICAL TECHNIQUES

The most serious deficiencies in output studies concern the closely related problems of the absence of explicit model specification and the presence of inappropriate statistical techniques. Even where the above noted difficulties concerning political, environmental and policy variables are overcome, the use of inappropriate models and techniques invalidates the results obtained. An appreciation of these problems is therefore crucial to the interpretation of the statistical results discussed in Section V below.

The analysis in this section is in three stages. The first stage discusses the model specification necessary to reflect Easton's theory and the statistical techniques necessary to provide optimal estimates of the relative importance of environmental and political variables and their combined explanatory power. In the second stage the implicit models which follow from the statistical techniques which have actually been used in output studies are made explicit and the implications for the validity of the statistical results are considered. Finally the extent to which these results can legitimately be used to infer *causal* relationships is analysed.

[68] For example, Dye (b) and (f); Thompson, Appendix A.

[69] See I. Sharkansky, 'Governmental Expenditures and Public Services in the American States', *American Political Science Review*, LXI (1967), 1066–77; J. Christensen and G. Taylor, 'Determinants, Expenditures and Performance of Common Public Services', *Rural Sociology*, XLVII (1982), 147–63.

[70] Such as they are. For a review of the literature see S. Barret and C. Fudge, *Policy and Action* (London: Methuen, 1981).

(1) Specifying and Testing Easton's Model

A model which is isomorphic to Easton's theory must be specified in a precise form. This form is shown in Model I where it is expressed both as a path diagram and as a multiple equation system.[71] The political system stage in the causal chain is separated into 'inputs', 'formal structure' and 'policy makers'. The model states that the effect of the environment on policies is *indirect*, through inputs, formal structure and policy makers; that the effect of inputs is *indirect* through formal structure and policy makers; that the effect of formal structure is *indirect* through policy makers; and that only policy makers have a *direct* effect (see Model I, p. 494).

In order to derive optimal estimates of the relative importance of environmental and political variables a multiple equation system must be employed. The coefficients within a multiple equation system can be used to estimate the total effect of each variable based on its indirect effects and (if present) its direct effect. However, even where the appropriate form of model is specified, as in Model I, two problems arise in the evaluation of the relative importance of environmental and political variables. The first problem is that unstandardized regression coefficients of independent variables are not comparable because they are expressed in different units of measurement (e.g. percentage of Labour seats, pounds of rateable value.) Therefore it is necessary to standardize the regression coefficients in order to compare the importance of independent variables.[72] Standardization is not only essential for calculating comparable total effects but also facilitates the calculations which involve multiplying the regression coefficients for each link in each path between the independent and dependent variable. The result of applying this procedure to Models I–III is shown in Table 2.

The second problem which arises in the evaluation of the relative importance of independent variables is collinearity between two variables or multicollinearity amongst a set of variables. Where this is high[73] existing statistical techniques cannot produce reliable estimates of the relative importance of the variables, either in terms of their standardized regression coefficients or in terms of their unique contribution to R^2. Such collinearity has been viewed as an inconvenience in output studies. However, when viewed within the context of a model which is isomorphic to Easton's theory relationships previously interpreted as collinear may be reinterpreted as

[71] On path diagrams, path analysis and multiple equation models see O. D. Duncan, *An Introduction to Structural Equation Models* (New York: Academic Press, 1975); H. B. Asher, *Causal Modelling* (Beverley Hills, Calif.: Sage, 1976).

[72] Standardization is achieved by expressing the coefficient of each variable in units of standard deviation or 'beta weights'. Where models are presented in path diagrams the beta weights are termed 'path coefficients'. See Asher, *Causal Modelling*.

[73] Two 'rules of thumb' which have been suggested is to consider zero-order coefficients above 0·8 or above the coefficient of determination for the whole model as constituting 'high' collinearity. See D. E. Farrar and R. R. Glauber, 'Multicollinearity in Regression Analysis: The Problem Revisited', *Review of Economics and Statistics*, IL (1967), 92–107.

causal. The presence of causal relationships between independent variables means that multicollinearity is *embedded within the structure of the model* (see for example links '*a*' '*e*' and '*f*' in the path diagram for Model I and Equations 1 to 3). However, just as these causal relationships are an inherent property of the model so multicollinearity is an inescapable problem in the practical statistical evaluation of the relative importance of environmental and political effects.[74]

The issue of multicollinearity has been only dimly perceived in output studies. Only fifteen of the American and ten of the British studies listed in Table 1 even recognize the problem.[75] In the absence of an explicit discussion within the study the presentation of the zero-order correlation matrix provides some indication of the degree of collinearity between independent variables.[76] However, other than the studies which recognize the presence of collinearity only six American and two British studies present a zero-order correlation matrix.[77] The extent to which output studies results for the relative importance of the environment and politics are affected by collinearity is therefore largely unknown.

The problem of multicollinearity, then, means that even standardized measures of total effects derived from a multiple equation system specified in a form isomorphic to Easton's theory do not necessarily provide reliable estimates of the relative importance of environmental and political variables. However, this model specification and statistical technique can provide estimates which are superior to those provided by the models and techniques discussed below.

(2) Techniques and Models in Output Studies

The forms of model which follow from the statistical techniques used in output studies are shown in the path diagrams and equations in Models II and III. Most output studies use statistical techniques which estimate only 'direct effects' and thereby implicitly test Model II. A small number also estimate 'indirect effects' in the form shown in Model III. In short, no output study obtains statistical results from a model consistent with Easton's theory. It

[74] For a concise discussion of possible responses to the multicollinearity problem see D. Gujurati, *Basic Econometrics* (Auckland: McGraw Hill, 1979), Chap. 9. The specification of Model I slightly alleviates the collinearity problem to the extent that environmental variables do not appear in the same equation as policy-maker variables anywhere in the model.

[75] See Atkins and Glick, Booms and Halldorson, Clark, Dye and Renick, Elsinger (a) and (b), Fisher, Jones, Meier and England, Pulsipher and Weatherby, Rose, Shaffer and Weber, Sigelman and Smith, Sullivan, Appendix A; see Ashford *et al.*, Davies *et al.* (a) and (b) Danziger, Jackman and Sellars, Nicholson and Topham (a) and (b), Pinch, Sharpe and Newton, Storey, Appendix B.

[76] The zero order correlations are not in themselves an adequate test for multicollinearity. This requires that all the other independent variables be regressed on each independent variable in turn. See J. Johnston, *Econometric Methods* (New York: McGraw Hill, 1972), pp. 163–4.

[77] See Baker and Colby, S. E. Clarke, Fairbanks (a) Gibson *et al.*, Grumm, Ulsaner and Weber, Appendix A; see Alt, Boaden, Appendix B.

Three models of the relationship between the environment, politics and policy outputs

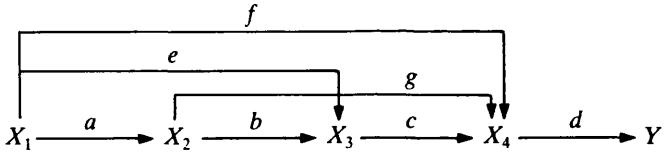
In the following diagrams and equations:

X_1 = Environmental conditions
X_2 = Inputs
X_3 = Formal structure of the political system
X_4 = Policy makers
Y = Policy outputs
Bs = Standardized regression coefficients
Us = Error terms

Model I:

The Easton-Based Model

Expressed as a path diagram this model is:



Expressed as a multiple equation system this model is:

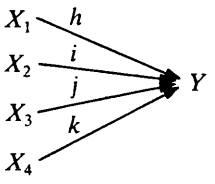
(X_1, Exogenous)

$X_2 = B_1X_1 + U_2$ Equation 1
$X_3 = B_1X_1 + B_2X_2 + U_3$ Equation 2
$X_4 = B_1X_1 + B_2X_2 + B_3X_3 + U_4$ Equation 3
$Y = B_4X_4 + U_y$ Equation 4

Model II:

The Direct Effects Model

Expressed as a path diagram this model is:



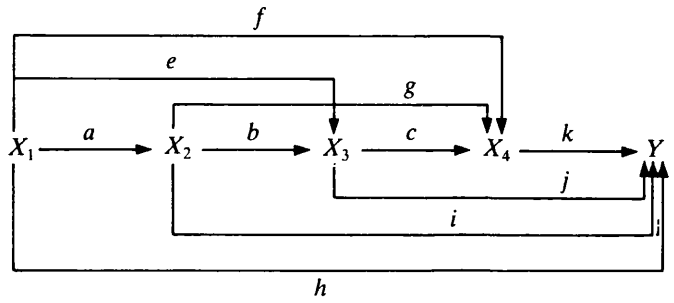
Expressed as a single equation this model is:

$Y = B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + U_y$ Equation 5

Model III:

The Direct and Indirect Effects Model

Expressed as a path diagram this model is:



Expressed as a Multiple Equation System this model is:

(X_1, Exogenous)

$X_2 = B_1X_1 + U_2$ Equation 6

$X_3 = B_1X_1 + B_2X_2 + U_3$ Equation 7

$X_4 = B_1X_1 + B_2X_2 + B_3X_3 + U_4$ Equation 8

$Y = B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + U_y$ Equation 9

TABLE 2 *Comparison of the Total Effect of Each Independent Variable in Each Model*

	Model I	Model II	Model III
Effect of X_1 =	$(a \times b \times c \times d)$ + $(a \times g \times d)$ + $(e \times c \times d)$ + $(f \times d)$	h	$(a \times b \times c \times k)$ + $(a \times g \times k)$ + $(e \times c \times k)$ + $(f \times k)$ + $(a \times b \times j)$ + $(a \times i)$ + (h)
Effect of X_2 =	$(b \times c \times d)$ + $(g \times d)$	i	$(b \times c \times k)$ + $(g \times k)$ + $(b \times j)$ + (i)
Effects of X_3 =	$(c \times d)$	j	$(c \times k)$ + (j)
Effects of X_4 =	d	k	k

must be emphasized that the models specified do not follow from some alternative theory. Rather, *the models have been imposed by the statistical techniques used*, their structure implicit and their relationship to theory ignored. The proper relationship between theory, model specification and statistical technique has been inverted in output studies. The consequence of this dominance of technique over theory has been to pull most of the results into a statistical 'black hole' from which no clear signal can escape. The impact of testing Models II and III on output studies' estimates of the relative importance of independent variables and their combined explanatory power is considered below. It should be emphasized that the criticisms of the techniques are made within the context of Easton's theory and the aims of output studies. They may be quite adequate in other contexts.

The statistical techniques which have been used to evaluate the relative importance of the environment and politics are shown in the columns labelled '1' to '7' of Table 1. The symbol (*) indicates in which studies each technique has been used. In American studies the early dominance of correlational and stepwise techniques has been replaced by single equation regression and, to a more limited extent, multiple equation regression, usually in the path analysis format. In the British studies later entry into the field has allowed the single equation regression technique to dominate: ironically it is only two of the early studies which use the more sophisticated path analysis format.

The techniques used in studies noted in columns 1 to 5 of Table 1 (correlational, stepwise and single equation regression techniques) share the problem of imposing the form of specification shown in Model II.[78] These techniques estimate the relative importance of variables on the basis of only direct effects. The model assumes that there are no causal relationships amongst the independent variables and that the effect of each variable is 'additive'. Where effects are additive the impact of an independent variable is the same regardless of the value of other independent variables.[79] An additive specification is inconsistent with Easton's model which emphasizes the interaction of environmental and political conditions. Thus, for example, the effect of environmental variables in Model I depends on the value of input, formal structure and policy-maker variables.

It has been argued that additive models underestimate the relative importance of environmental variables by omitting their indirect effect through political variables.[80] Note that all the indirect effects shown for environmental

[78] In addition to the shared problem of imposing an inappropriate model each of these techniques present individual technical problems which introduce further unreliability to the estimates obtained. On partial correlation see Blalock, *Causal Inferences in Non-Experimental Research*, pp. 85–8; on multiple partial correlation see Cnudde and McCrone, Appendix A; on stepwise analysis see M. Lewis-Beck, 'Stepwise Regression: A Caution', *Political Methodology*, IV (1978), 213–40.

[79] For example, a £1 increase in rateable value per capita is assumed to have the same effect whether Labour holds 5 per cent or 55 per cent of a council's seats.

[80] See M. Lewis-Beck, Appendix A; M. Lewis-Beck and L. B. Mohr, 'Evaluating Effects of Independent Variables', *Political Methodology*, III (1976), 27–47; Swant, 'Linking Theory and Method in Urban Policy Analysis: Problems of Test Interpretation'.

conditions in the path diagram for Model I are omitted from the path diagram for Model II. However, additive models also overestimate the importance of environmental variables to the extent that unintelligible direct effects are attributed to them. Note here that the effect '*h*' in the path diagram for Model II is not present in the path diagram for Model I. Thus the net effect of techniques which impose Model II is not necessarily to underestimate the importance of the environment, rather the impact of these techniques on estimates of the relative importance of environmental and political variables is ambiguous. The statistical results may overestimate the effect of either category of variable.[81]

The studies noted in column 6 of Table 1 use multiple equation systems to estimate the relative importance of the environment and politics. Twelve of the thirteen studies noted use standardized regression coefficients and therefore in principle can provide optimal estimates of relative importance if the model is appropriately specified.[82] However, this condition is not met in any of these studies.

Instead Model III has been imposed because the assumption is made that every independent variable can have a direct effect on outputs, and estimates of relative importance are derived on this basis. It can be seen that Equations 6 to 8 in Model III are identical to Equations 1 to 3 in Model I. However, the difference between Equation 4 and Equation 9 reflects the radically different assumptions of the models concerning the possibility of a direct effect by the environment, inputs and formal structure. This difference is also shown in the path diagrams for Models I and III. Model III adds the direct effects '*h*', '*i*' and '*j*' from the path diagram for Model II to the effects shown in the path diagram for Model I. Thus estimates derived from multiple equation systems specified in the form shown in Model III overestimate the relative importance of environmental variables.[83] The total effect of the environment in this model is derived not only from indirect effects but also from theoretically unintelligible direct effects.

The studies noted in column 7 either use a technique which does not permit the evaluation of the relative importance of environmental and political variables or present results in a form which makes interpretation difficult. Studies designated as 'A' use only zero order correlations or cross tabulations which estimate the effect of each independent variable without any form of control for the others. Studies designated as 'B' indulge in various forms of frippery with partial correlation.[84] Only studies designated as 'C' are of any

[81] It is important to stress that the source of the unreliability discussed here is specification error. The extent to which the estimates are inefficient because of multicollinearity is yet a further source of unreliability. The same point applies to the discussion of Model III below.

[82] The exception is Klaas, Appendix A.

[83] The overestimate in any particular study depends on the extent to which direct effects are included in the estimate of total effects for all environmental variables.

[84] Most show partial correlations only for the political variables; some show 'selected' partial correlations on no apparent basis; Bingham, Appendix A, attempts to test Model III through a cumbersome sequence of partial correlations which defies interpretation.

substantive interest. These studies attempt to identify the joint impact on outputs of the interaction of environmental and political variables, using either correlational or single equation regression techniques. These studies use one of two methods to estimate interaction effects.

The first method is to split the cases into subgroups on the basis of one independent variable and then to test the effect of other independent variables within each sub-group.[85] For example, Lineberry and Fowler[86] split cities into 'reformed' and 'unreformed' and examine the strength of the relationship between social heterogeneity and outputs within each category. There are two problems here. Firstly, no measure of the relative importance of the 'conditioning' variable is provided. Secondly, an additive specification is imposed for the remaining independent variables within each sub-group.

The second method of testing for an interaction effect has been to include a multiplicative term in a single equation. This is consistent with Easton's theory to the extent that the effect of each independent variable is influenced by the others. However this specification cannot, by definition, reveal anything about the relative importance of environmental and political variables.[87]

(3) Causality

In the absence of a valid causal model statistical results may simply describe the pattern of covariation amongst variables rather than providing evidence about causal relationships. However, in output studies the standard statistics textbook warning that correlation does not equal causation is respected in principle but frequently neglected in practice. While many of the results of output studies show that particular characteristics of the environment, politics and policy *coincide*, two problems arise in inferring that the relationships amongst the variables are *causal.* The first is the use of static models which measure the level of both independent and dependent variables. The second problem is the use of inappropriate lag structures for the times at which the independent and dependent variables are measured.

The argument for the adoption of causal models in output studies is longstanding.[88] The development of causal models has proceeded along two

[85] See G. Wright, 'Linear Models for Evaluating Conditional Relationships, *American Journal of Political Science*, xx (1976), 349–73.

[86] Lineberry and Fowler, Appendix A.

[87] There is also a subtle theoretical difference between specifying a single equation model with a multiplicative interaction term and specifying a multiple equation model. In the single equation specification, policy makers are assumed never to act independently of environmental constraints. However, in the multiple equation model, this assumption is tested by estimating the value of $B_1 X_1$ in Equation 3 of Model I. If the coefficient is not significant then this is consistent with autonomy from direct environmental constraints, although not from the indirect constraints which operate through inputs and formal structure

[88] See Coulter, 'Comparative Community Politics and Public Policy'. For a broader discussion of the meaning of 'cause' see R. A. Dahl, 'Cause and Effect in the Study of Politics', in D. Lerner, ed., *Cause and Effect* (London: Collier–Macmillan, 1965).

separate paths: multiple equation models and models of policy change. These two separate developments must be united in order to meet the conditions for the specification of a causal model.[89] Advocates of multiple equation models implicitly assume that the specification of a system of equations is a sufficient condition for a causal model.[90] A multiple equation model is certainly necessary to test causal hypotheses about the structure of relationships through which each independent variable affects outputs. However, a multiple equation model is insufficient to test causal hypotheses if the model is static with all variables measured as *levels*.[91] A valid causal model requires both a multiple equation system and the measurement of variables in terms of *change*. Support for a causal hypothesis requires that change in the dependent variable follows change in the independent variable.[92] While a considerable number of output studies have analysed change in the dependent variable they have usually measured the independent variables as levels and therefore fail to meet this condition for a causal model.[93] Thus for most output studies it is necessary to assume that the results reflect causal processes because causal hypotheses are not directly tested. Without this assumption the interpretation of the statistical results must simply be that environmental and political conditions coincide with policy outputs to a greater or lesser extent.

The second problem of making causal inferences, from results both for output levels and for output change, is lack of attention to the specification of lag structures. Few output studies recognize that a necessary condition of an appropriate lag structure is that sufficient time must be allowed for the

[89] Strictly, a fully dynamic model requires a non-recursive specification which would involve linking theories of policy formulation to theories of policy implementation and identifying the unique impact of policy on the environment. Given the present state of the art of policy analysis this seems rather like running before we can crawl. However, two interesting attempts to move more quickly in this direction are P. Fowler and R. Lineberry, 'Comparative Policy Analysis and the Problem of Reciprocal Causation', in C. Liske, eds., *Comparative Public Policy* (New York: Wiley, 1975), and W. B. Shepard and R. K. Godwin, 'Policy and Process: A Study of Interaction', *Journal of Politics*, XXXVII (1975), 576–82.

[90] See D. S. Van Meter and H. B. Asher, 'Causal Analysis: Its' Promise for Policy Studies', *Policy Studies Journal*, II (1973), 103–9; Dye, *Policy Analysis*; Lewis-Beck, Tompkins, Appendix A.

[91] For a general discussion of the problems of inferring causal processes from static cross-sectional models, see R. D. Brunner and K. Liepelt, 'Data Analysis, Process Analysis and System Change', *Mid Western Journal of Political Science*, XVI (1972), 538–69. Their argument is developed in the output studies context in Gray, Appendix A. A useful alternative approach to this issue which arrives at substantially the same conclusions as Brunner and Liepelt is R. I. Hofferbert and G. Schaeffer, 'The Application of General Systems Methodology to the Comparative Study of Public Policy', *International Journal of General Systems*, VIII (1982), 93–108.

[92] J. W. Dyson and D. St. Angelo, 'A Methodological Problem in the Socio-Economic Interpretation of State Spending', *Policy Studies Journal*, II (1975), 131–6.

[93] A notable exception is Jones, Appendix A. It is possible to justify the use of static measures where they represent variables of theoretical importance which were constant over the period in question. Of the studies which analyse output change this is argued only by Lyons and Morgan, Appendix A.

independent variables to affect outputs.[94] While several critiques have noted the specific problem of using current environmental conditions to explain long-established governmental forms[95] it is only recently that some attention has been given to the general issue of lags in output studies.[96] The widespread presence of questionable lag structures throws further doubt on the statistical results. However, there can be no 'general theory of lags' on which prescriptions for an appropriate lag structure can be based. The specific lag structure which is appropriate for a particular set of independent variables and a particular output must stem from substantive knowledge of the policy area under consideration.

V. RESULTS

The results of American and British output studies are summarized in Table 3.[97] The results are arranged in nine output level categories (four financial and five non-financial) and five output change categories (four financial and one non-financial). In each column two pieces of information are provided for each study which has analysed that particular output.

Firstly, the figure on the left of each column is the combined explanatory power (R^2) of the political and environmental variables employed. If more than one output within a category has been analysed by the study then the range of R^2s is shown. If no R^2 is reported within the study then the symbol (X) is shown.

Secondly, on the right of each column the result of the study for the relative importance of environmental and political variables for that particular category of output is shown. The symbol 'E' indicates that the environment outweighs politics and the symbol 'P' indicates the reverse. Where more than one output is analysed within a category then the symbol represents the balance of the results. Where this balance is very close the symbol 'M' (mixed results) is shown. Again, if no statistical result which permits a comparison of the importance of environmental and political variables is reported within the study then the symbol (X) is shown.

There is no attempt in this discussion to examine the results for individual variables. Given the failure to test hypotheses or explain results within an explicit theoretical context, many of the results for individual variables appear capricious, contingent upon the statistical technique and bundle of

[94] Exceptions are Morss, Jones, Roeder, Shaffer and Weber, Uslaner and Weber, Appendix A; Nicholson and Topham, (a) and (b). Karran, Appendix B.

[95] Coulter, 'Comparative Community Politics and Public Policy', Rakoff and Schaeffer, 'Politics, Policy and Political Science: Theoretical Alternatives'; Munns, 'The Environment, Politics and Policy Literature: A Critique and Reformulation'.

[96] H. Tucker, 'It's About Time: The Use of Time in Cross-Sectional State Policy Research', *American Journal of Political Science*, XXVI (1982), 176–96.

[97] Studies listed in Table 1 which report results neither for the relative importance of environmental and political variables nor for their combined explanatory power are omitted from Table 3.

other variables pressed into service.[98] Attention is therefore focused on the combined explanatory power and the relative importance of the general environmental and political categories of variable.

The discussion of results in this section is shadowed throughout by the general problems of theory and methodology noted in Sections II–IV. These problems will not be repeated at every turn; however it is important to remember the questions which they raise about the validity of the results.

The Explanatory Power of Output Studies Models

Of the studies listed in Table 3, sixty-five of the American and fourteen of the British studies report R^2s. Many may report an artificially inflated estimate of R^2 because they fail to take account of the degrees of freedom in the models used. As the degrees of freedom decline (i.e. as the number of cases falls or the number of independent variables increases) the significance of the explanatory power of the model declines. This significance can be measured either through the F statistic or through an R^2 which is adjusted for degrees of freedom.[99] However, only six of the American studies and one British study report an adjusted R^2,[100] while only two American studies and two British studies record an F statistic.[101] Assuming that these problems are uniform across all output categories, however, it is possible to note some salient features of the results.

Firstly, the explanatory power of the models is generally higher for output levels than for output change.[102] In the American studies the mean percentage R^2 for output levels is in the lower 50s while that for output change is in the lower 40s. Within the output level and output change categories there is no substantial difference in explanatory power between financial and non-financial outputs. In the British studies there are too few analyses of output change and non-financial outputs to make similar comparisons. However, it can be noted that the mean R^2 in the British studies is 10–15 per cent lower than in the American studies. It is only possible to speculate on the reasons for this, but the relatively narrow range of political variables in the British studies may well be a contributory factor.

[98] A further problem in interpreting results for individual variables is that some studies fail to report the results of significance tests even where the cases represent a sample. There is considerable divergence of opinion within output studies on the utility of significance tests where the cases constitute a population. There is a good discussion of this issue in Sharpe and Newton, Appendix B. See also R. E. Henkel, *Tests of Significance* (Beverley Hills, Calif.: Sage, 1976).

[99] See Johnson, *Econometric Methods*, pp. 35–8 and 129–30.

[100] Booms, S. E. Clarke, Eisinger (b), Mazmanian and Sabatier, Stonecash and Hayes, Winters, Appendix A; Storey, Appendix B. The adjusted R^2 can be calculated provided information on the number of cases, number of variables and unadjusted R^2 is presented. See Johnson, *Econometric Methods*, pp. 130 for the formula.

[101] Fisher, Giertz, Appendix A; Danziger, Foster *et al.*, Appendix B.

[102] This greater ability to explain output levels than to explain output change is also true of incremental models. See Danziger, Hoggart, Appendix B.

TABLE 3
Results in Output Studies

		Results for the ouput levels: Financial				Non-financial					Results for output change				
		Welfare expenditure	Other expenditure	Total expenditure	Tax	Redistribution	Responsiveness	Presence/extent of policy adoption	Innovation	Other	Welfare expenditure	Other expenditure	Total expenditure	Tax	Non-financial
United States		R^2 I	R^2 I	R^2 I	R^2 I	R^2 I	R^2 I	R^2 I	R^2 I	R^2 I	R^2 I	R^2 I	R^2 I	R^2 I	R^2 I
Dawson and Robinson	1963	X E													
Fisher	1964	19 E	44–75 E	65 E											
Matthews & Prothro								30 E							
Booms	1966		44 E												
Dye (b)		27–76 E	25–74 E		16–80 E					20–82 E					
Fenton		35–63 M		59 E											
Cho	1967	43 P	51–81 M	86 E	87–91 M										
Dye (c)			12–56 E												
Lineberry & Fowler				36 X	52 X										
Morss *et al.*												24 P	38 P		
Sharkansky (a)		88 P	72–88 P	91 P											
Sharkansky (b)		93 P	82–97 E	95 P											
Dye (d)	1968							X E							
Pulsipher & Weatherby		26 X	20–83 E	58 E											
Sharkansky (c)													50 P		
Cnudde & McCrone	1969	X E													
Clarke								74 E							
Cowart		X P													
Dye (e)		X E	X E		X E										
Dye (f)		74 E						59 E		64 E					
Lineberry			14 E												
Paulson *et al.*		X E								*X E					
Sharkansky & Hofferbert (a)		69 E	70 E												
Fry & Winters	1970					55 P									
Clark	1971		50 E	66 E				51 E							
Cole			12 E							8–12 E					
Grumm		64 E		66 E	16 E										
Sharkansky (e)		X E	X E												
Sharkansky (f)		X E	X P												
Hoffman & Prather	1972	56–62 E	69 E												
Strousse & Williams											71 P	40–83 P			
Sullivan						56 E									

TABLE 3
Results in Output Studies

		Results for the ouput levels									Results for output change				
		Financial					Non-financial								
		Welfare expenditure	Other expenditure	Total expenditure	Tax	Redistribution	Responsiveness	Presence/extent of policy adoption	Innovation	Other	Welfare expenditure	Other expenditure	Total expenditure	Tax	Non-financial
Weber & Shaffer								32–81 P							
Asher & Van Meter	1973	18–74								14–72 P	16–82 P	E	E	E	23–81 P
Booms & Halldorson						64 P									
Cho & Frederikson (a)		48 P	35–76 M	59–82 E	37–85 M	35–46 P				27–69 M	62–66 M	33–61 P	37–56 E	32–45 P	
Cho & Frederikson (b)							33–55 X								
Deon					X M										
Gary		50–79 X								30–62 X					
Gibson *et al.*			8 P					64 P							
Hutchenson & Taylor					X P					X P					
Lemay			X E					X E							
Aiken & Alford	1974	37 E	49 E						37–43 E						
Hopkins								30–36 P							
Jones											10–70 P	10–40 P	10–40 P		10–70 P
Shaffer & Weber								15–80 P							24–89 P
Strouse & Jones		53–77 X	45–76 X												
Foster	1975								50 E						
Havick										9–25 P					
Tomkins		69 E													
Uslaner & Weber						47–80 P									
Welch											6 X	2–11 X		1–13 X	
Atkins & Glick	1976									22–45 P					
Downs									50 P						
Danziger & Dutton	1977								38–45 E						
Fairbanks (a)								X P							
Lewis-Beck		X E													
Lyons & Morgan			60 E	56–68 E								33–47 E	38–51 P		
Schumaker & Getter							31 P								
Getter & Schumaker	1978						29–40 P								
Lyons		E	E	53–86 P									30–33 X		
Jennings (a)	1979										2–79 X				
Roeder		60 X	67 X												
Clarke	1980								50 P						
Fairbanks (b)								46–72 X							
Game			34 P							54 M					
Jennings														54 P	
Jennings (c)											20–42 E				
Mazmanian & Sabatier								86 P							
Regens									28–52 E						
Siegelman & Smith								49 P							
Welch & Karnig		75 X	24–88 X	85 X							22 X	4–28 X	16 X		
Baker & Colby	1981		18–49 E	68 E				38–55 E							
Dye & Renick								14–83 E							
Giertz				74 X											
Lentz			45–56 X												
Perry								48 P							
Sigelman *et al.*									38 P						
Stonecash & Hayes		40–66 E													
Thomson								X P							

TABLE 3 (*continued*)

		Results for the ouput levels									Results for output change				
		Financial			Non-financial										
		Welfare expenditure	Other expenditure	Total expenditure	Tax	Redistribution	Responsiveness	Presence/extent of policy adoption	Innovation	Other	Welfare expenditure	Other expenditure	Total expenditure	Tax	Non-financial
United States		R^2 I	R^2 I	R^2 I	R^2 I	R^2 I	R^2 I	R^2 I	R^2 I	R^2 I	R^2 I	R^2 I	R^2 I	R^2 I	R^2 I
Eisinger (a)	1982							70–82 E							11–31 E
Eisinger (b)										71–81 E					
Lester	1983							7–46 E							
Schumaker & Getter							37–46 P								
Meier & England	1984							6–51 X							
England and Wales															
Oliver & Stanyer	1969			20 E	26 E										
Alt	1971	12–25 P	12–45 E		51 M					54 P					
Boaden		X E	X E		X M	X P				X P					
Davies *et al.* (a)		21–33 E		29 E						19–80 E					
Nicholson & Topham		47 E													
Davies *et al.* (b)	1972	93 X		31 E						26–29 E					
Nicholson & Topham			40–46 E												
Ashford *et al.*	1976			72–89 E											
Danziger	1978	12–32 E	45–70 E	80 E		65 X				60 E					
Jackman & Sellars				61–77 X											
Pinch										17–67 P					
Schofield		47 E	36 E												
Foster *et al.*	1980	28–67 E	12–24 E	49–58 E											
Storey										27–85 X					23–78 X
Karran	1982	50 X	32–60 X												
Sharpe & Newton	1984	12–63 X	11–82 X	43–76 X											

The Relative Importance of Environmental and Political Variables

Sixty-six of the American studies and ten of the British studies listed in Table 3 record explicit conclusions on the relative importance of environmental and political variables and/or present their results in a form that allows relative importance to be evaluated.[103] The unknown net impact of the derivation of the results from models inconsistent with theory and the presence of multicollinearity amongst the independent variables makes the interpretation of the results particularly hazardous.[104] However, assuming that the problems noted in Sections II–IV above apply equally to all output categories some salient aspects of the results can be noted. These are summarized in Table 4.

In the American studies the balance of environmental and political effects is markedly different between categories of output. For financial output levels

TABLE 4 *Summary of Results for the Relative Importance of Environmental and Political Variables by Broad Output Category*

Category of variable dominant	All outputs		Financial output levels		Non-financial output levels		Output change	
	n	(%)	*n*	(%)	*n*	(%)	*n*	(%)
United States								
Environmental	66	(53)	42	(69)	20	(47)	4	(19)
Mixed	13	(10)	9	(15)	3	(7)	1	(5)
Political	46	(37)	10	(16)	20	(47)	16	(76)
Total	125	(100)	61	(100)	43	(101)	21	(100)
Britain								
Environmental	17	(71)	14	(82)	3			
Mixed	2	(8)	2	(12)	0			
Political	5	(21)	1	(6)	4			
Total	24	(100)	17	(100)	7			

* Total exceeds 100 because of rounding.

[103] The discussion of unstandardized regression coefficients on p. 492 noted that they are an inappropriate means of measuring the relative importance of the environment and politics because of the different measurement scales of the variables. However, the difference between the significance of the estimates of the unstandardized regression coefficients of environmental and political variables is so clear-cut as to allow a conclusion concerning their relative importance in the following studies: Cnudde and McCrone, Pulsipher and Weatherby, Jennings (b), Appendix A; Oliver and Stanyer, Nicholson and Topham (a), Danziger, Scholfield, Foster *et al.*, Appendix B.

[104] This is especially so in the case of results for total expenditures. Weicher and Emerine have shown that the statistical significance of an independent variable in the total expenditure equation depends on the signs, magnitudes and variances of the coefficients for that variable in the equations for functional expenditures of which total expenditure is composed. They conclude that the estimates in the total expenditure equation are likely to be so misleading that they serve no useful purpose. See J. C. Weicher and R. J. Emerine, 'Econometric Analysis of State and Local Government Expenditure Functions', *Public Finance*, XXVIII (1975), 69–83.

the balance is strongly towards the dominance of environmental variables. For non-financial output levels the results suggest the approximate equality of environmental and political effects. For output change the balance is strongly towards political variables. This general pattern corroborates the findings of the few studies which present results for both financial and non-financial output levels in the same policy area[105] and those which present results for output levels and output change within the same policy area.[106]

Results of the British studies allow the comparison of environmental and political effects only for financial and non-financial output levels. The balance of effects is similar to the American studies: clear environmental dominance for financial output levels and the approximate equality of environmental and political effects for non-financial output levels.

It seems, then, that there is a definite relationship between the type of policy output analysed and the relative importance of environmental and political variables. The results clearly indicate that in both the United States and Britain financial output levels are more strongly influenced by environmental than by political conditions, and that both categories of variable play an approximately equal role in influencing non-financial output levels. Studies of output change in the United States show a pronounced dominance of political effects over environmental effects. Given the similar pattern of output level results in both countries it is to be expected that these American results for output change will be replicated in future British studies.

However, before leaving the consideration of results for the relative importance of environmental and political variables it is necessary to enter another caveat concerning the reliability of this surprisingly neat pattern of relationships between output category and the balance of political and environmental effects. There is an alternative explanation for this pattern of results; an explanation which is ostensibly more anarchic but underlines the necessity for an explicit theoretical base in output studies. This alternative explanation is suggested by Sullivan's reanalysis of Fry and Winters's study of the determinants of redistribution.[107] Fry and Winters derived their result, which showed greater political than environmental effects, from a model which included the 'best' five of twelve political variables with the 'best' five of only six environmental variables. Sullivan argued that this procedure preconditioned the results in favour of political variables. He therefore re-ran the statistical analysis with the same best five political variables but with the best five from twelve environmental variables. He found that the relative importance of the environment and politics was reversed. Developing Sullivan's argument, an alternative explanation for the pattern of results

[105] See Aiken and Alford, Asher and Van Meter, Gary, LeMay, Appendix A; G. W. Downs and D. Rocke, 'Bureaucracy and Juvenile Corrections', in Dye and Gray, *The Determinants of Public Policy*.

[106] See Asher and Van Meter, Cho and Frederickson (a), Lyons and Morgan, Shaffer and Weber, Appendix A; a conflicting result is Eisinger (a), Appendix A.

[107] Sullivan, Fry and Winters, Appendix A.

TABLE 5 *Results in American Output Studies for the Relative Importance of Environmental and Political Variables Categorized by Number of Each Type of Variable in Models Tested*

Category of variable dominant	Results from all models		Results from models with more environmental than political variables		Results from models with equal number of environmental and political variables		Results from models with more political than environmental variables	
	N	(%)	*n*	(%)	*n*	(%)	*n*	(%)
Environmental	66	(53)	51	(87)	12	(44)	3	(8)
Mixed	13	(10)	2	(3)	5	(19)	6	(15)
Political	46	(37)	6	(10)	10	(37)	30	(77)
Total	125	(100)	59	(100)	27	(100)	39	(100)

summarized in Table 4 is that studies which use more environmental than political variables find the environment dominant and those which use more political than environmental variables find politics dominant. The validity of this argument in the case of American studies[108] is examined in Table 5.

It is necessary to emphasize caution in the interpretation of these figures given the process of compression and interpretation which underlies them. However the extent to which they are consistent with the argument that results for relative importance are a product of the ratio of environmental to political variables in the model is striking: 87 per cent of results derived from models containing more environmental than political variables show environmental effects dominant, and 77 per cent of results derived from models containing more political than environmental variables show political effects dominant.[109] In short, output studies results for the relative importance of environmental and political variables may be largely the product of a crude numbers game. There is a certain ironic justice in the results of studies so unconcerned with theory being so affected by ad-hocery. If this explanation of the pattern of results is valid there could be no stronger evidence for the case that every single variable in an output studies model should be pinned to an

[108] A similar analysis is not possible for the British studies because none use more political than environmental variables.

[109] This pattern is also present within the broad output categories. For financial output levels 91 per cent of results from models containing more environmental than political variables show environmental effects dominant and 55 per cent of results from models containing more political than environmental variables show political effects dominant. The parallel figures for non-financial output levels are 94 per cent and 83 per cent and for output change are 50 per cent and 82 per cent. It is difficult to interpret the low figure for models containing more environmental than political variables in the output change category because it is based on only six results.

explicit theoretical base. All models by their nature must roll loaded dice, but the loading should be explicit and theoretically based, not the accidental product of the ratio of one type of variable to another.

CONCLUSION

The contribution of output studies to political science cannot be considered impressive. Because of the problems discussed above, it is impossible to be confident about the substantive significance either of the estimates of the explanatory power of the models or of the estimates of the relative importance of environmental and political variables. The unreliability of the results as a guide to the cause of local policy variation is fundamentally the product of testing statistical models which are inconsistent with their theoretical base. It is important to stress that it is this inconsistency with theory rather than the nature of the output studies approach itself which is the root of the unreliability of the results. Therefore the results of studies which have been analysed in this review do not provide a valid measure of the utility of output studies as a research technique for identifying the determinants of policy variation. In order to permit a more rigorous evaluation of the utility of the approach, future output studies should endeavour to meet the following conditions concerning the general format of the model tested and the specific independent variables included in the model.

Output studies models should be specified in a multiple equation system the structure of which is isomorphic to Easton's theory. In order to test causal hypotheses the models should be dynamic, with variables measured in terms of change in an explicit lag structure. Optimal estimates of the relative importance of environmental and political variables can be derived from the total effects coefficients estimated from this model.

Critics of output studies have lamented the failure of the approach to identify a single set of variables with high explanatory power across all outputs.[110] However the use of 'standard models' across all outputs should be abandoned. The set of independent variables should be output specific, derived from substantive knowledge of the policy area under consideration. A search for simple, timeless and universal explanations is so unrealistic as to be doomed to failure. By contrast, Easton's systems framework offers an approach of great flexibility and potential utility within which variables can be tested on the basis of hypotheses concerning their effects in specific systems of sub-national governments, at specific times and on specific policies. The assumption within Easton's model that political systems are 'open' emphasizes the need to remain alert to the diversity of possible environmental influences on policy outputs. Similarly, while asserting the causal priority of politics the model does not prejudge which political variables are most important and thereby does not bias inquiry towards a narrow operationalization of the concept of a political system.

[110] Danziger, Sharpe and Newton, Appendix B.

Finally, it is worth emphasizing that the development of output studies is a cautionary tale with implications for all politometric research. The message is familiar but, given the output studies experience, clearly bears repetition: in the absence of theory, and a methodology which rigorously applies that theory, there is no safety in numbers.

APPENDIX A: AMERICAN OUTPUT STUDIES LISTED IN TABLES 1 AND 3

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CHAPTER III

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Median voters, political systems and public policies: An empirical test

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Abstract

This paper tests the median voter hypothesis that variations in policies across political systems are caused by variations in median voter preferences. The context of the empirical analysis is the tax policies of three groups of sub-national governments in England in three time periods. The results of a median voter model of tax policy variation are compared to the results of a mean voter model in different party systems and different electoral systems. The evidence provides little support for the median voter hypothesis.

Economic theories of politics seek to explain public policies on the basis of the self interested actions of members of the political system. The basic Downs model of representative democracy postulates that the consequence of personal utility maximisation by voters and politicians is that policies reflect the interests of the median voter[1]. This simple abstraction from the complexity of political behaviour implies that the fundamental cause of policy differences over time or across political systems is different median voter preferences. For those who have agonised over the question 'does politics matter?' the median voter model promises a reassuring answer[2]. This paper tests the median voter model in the context of variations in tax policies across sub-national governments in England. Section 1 examines the implications of previous tests of the median voter hypothesis. Section 2 presents median and mean voter models of local tax policies and specifies the variables through which the models are tested. Section 3 presents the results of tests of the models in different party systems and electoral systems. Section 4 summarises the findings and offers some concluding remarks.

1. Previous tests of the median voter hypothesis

Most of the literature on the median voter hypothesis consists either of critiques of the assumptions of Downs' model[3] or logical proofs of the implica-

tions of altering the assumptions[4]. The scarcity of empirical evidence is ironic given Downs' belief that 'theoretical models should be tested primarily by the accuracy of their predictions rather than by the reality of their assumptions'[5].

The few empirical tests of the median voter hypothesis which have been conducted can be divided into three categories.

First, there are several 'indirect' tests of the hypothesis. Kasper (1971) found that the coefficient of variation for welfare expenditures in the USA was smaller in 'two-party' states than in 'one-party' states. He concludes that inter-party competition causes 'moderate' policies to be adopted. The evidence is a long way from directly establishing the impact of party competition on welfare policies, let alone the impact of the median voter. However, if the median voter is 'moderate', then the evidence suggests that the two-party struggle for votes assumed in the Downs' model may be a precondition in practice for median voter influence on policies. Further indirect tests of the median voter hypothesis by Hoffman (1976) and by Kristensen (1982) are based on 'percentage difference' scores. These scores are obtained by subtracting the percentage of the public favouring higher service expenditures from the percentage favouring lower expenditures. If expenditures match median voter preferences then the scores should be close to zero. Neither study finds much support for the median voter hypothesis. Hoffman extends the analysis by exploring several variables which might mediate between public opinion and service expenditures. The results corroborate Kasper's inference: the fit of the median voter model tends to be improved by the presence of a two-party system.

A second category of empirical analyses has used data on sub-national governments in the USA to test directly the statistical relationship between median voter and policy variables. The pioneering study by Barr and Davis (1966) found that local expenditures were negatively related to median tax price, but not significantly related to median income[6]. Several subsequent studies have found both median tax price and median income to be important influences on local tax and expenditure decisions[7]. However, these studies have been criticised for failing to compare the performance of the median voter model with plausible rival models[8]. Most studies of local policy variation use measures of the average characteristics of the local electorate as explanatory variables. This 'mean voter' model is supported by the statistical results of a large number of studies[9].

These results can be interpreted as indirect support for the median voter model because there is likely to be a positive correlation between median and mean voter variables. However, the median and mean models yield different predictions. Therefore a 'crucial experiment' for the rarely tested median voter model is whether it performs better than the frequently tested and widely supported mean voter model. In the median voter model policies

reflect the demands of a 'pivotal' elector on the distribution of public preferences. In the mean voter model policies reflect the aggregate demand per elector. Thus suppose in two cities that median and mean voter demand for public expenditure per capital is as follows:

	MEDIAN DEMAND	MEAN DEMAND
CITY A	£1,000	£ 900
CITY B	£ 900	£1,000

The median voter model predicts that actual expenditure will be higher in City A while the mean voter model predicts the reverse. If the data supports the mean model this need not imply the heretical inference that politicians are motivated by an altruistic concern for the 'general interest'. It may simply indicate that the mean voter variable is acting as a proxy for other self interested behaviour (e.g. pressure group activity), and that such behaviour outweighs the impact of vote-maximisation by politicians.

A third small category of studies has compared median voter with mean voter models of policy variation across local communities in Switzerland. Pommerehne and Frey (1976) found that the performance of the two models was virtually identical[10]. However, the results differed when Pommerehne (1978) conducted the analysis separately for various types of local political systems. The median voter model produced superior results to the mean voter model in direct democracies but not in representative democracies. These results offer little succour to the median voter model. It is, after all, the mechanisms of representative democracy which push policies towards median voter interests in the Downs model. However, the results indicate that the fit of the median voter model depends on whether the policy process is insulated from public preferences. Even where all local political systems are representative democracies there will be variations in the potential exposure of politicians to electoral pressures. Such variations seem likely to influence the correspondence between the median voter model and empirical data.

In sum, several important features emerge from this survey of previous tests of the median voter hypothesis. Substantively, there is little evidence on the impact of the median voter on public policies. This paper presents additional evidence and extends the empirical base to English local government, a context in which the hypothesis has not previously been tested. Methodologically, it is important to compare median voter and mean voter results and to take account of differences in political context. Both of these features are incorporated in the empirical analysis below.

Table 1. Variables, labels and data sources

Concept	*Operationalisation*	*Label*	*Source*
Tax policy	Annual % change in rate poundage	ΔRP	1
Median voter interests	Local tax price of the median voter	MEDTP	1,2,3,4
Mean voter interests	Local tax price of the mean voter	MEANTP	1,2,3,4
Central grants	Annual % change in central grants at market prices	ΔGR	1
Political disposition	Percentage of Council seats held by the Labour party	LAB	5
Local incomes	Proportion of population in social classes A, B, and C	INC	6
Business ratepayer interests	Commercial and industrial premises as proportion of local tax base	BRP	3

Data sources

1. Financial and General Statistics (London, CIPFA, Annual).
2. Electoral Statistics, (London, OPCS, Annual).
3. Rate Collection Statistics (London, CIPFA, Annual).
4. Housing Rents Statistics (London, CIPFA, Annual).
5. The Municipal Yearbook (London, Municipal Publications, Annual).
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2. Models of variations in local tax policies

This section specifies the variables used to test the median and mean voter models and discusses the political context of the empirical analysis. The variables and data sources are summarised in Table 1.

2.1. *The dependent variable: Local tax policy*

Tax policy is specified as the annual percentage change in the level of property tax, the local 'rate'. Unlike sub-national governments in the USA and Western Europe, local authorities in England rely solely on the property tax for local tax revenue[11]. The local rate is levied on both domestic property (houses, flats etc.) and non-domestic property (commercial, industrial and governmental premises).

The level of property tax is the most salient issue in local political systems for two reasons[12]. First, rates are a highly visible tax. Ratepayers are confronted by a lump-sum demand for payment which must be met from income net of other taxes. This may cause a 'fiscal illusion' whereby the burden of local taxes compared to other taxes is overestimated by ratepayers[13]. The second cause of the political salience of rates is that they are a 'non-buoyant' tax. There is no annual property revaluation and therefore the rate level must be reset each year simply to keep pace with inflation. This requirement for an annual resolution of conflict over rates ensures a persistently high position on the policy agenda.

2.2 *Independent variables*

2.2.1 *Median voter interests*

The self interest axiom suggests that there is a negative relationship between the existing rate payment of the median voter and the size of rate increases. More specifically, those voters who pay no local taxes can benefit from the services funded by extra rate revenue at no direct cost to themselves[14].

Data on the local tax price of the median voter is not directly available but can be derived as follows. Domestic ratepayers comprise not the whole local electorate but only 'householders'. The ratio of domestic ratepayers to electors (R/E) varies from around 40% to 65%. If R/E is less than 50% than the median voter in a local authority is not a ratepayer and therefore incurs no perceptible cost from a rate increase. Similarly, if R/E is greater than 50% than the median voter is a ratepayer and incurs a direct cost from a higher level of property tax.

More formally, if $R/E < 50\%$ then $MEDTP = 0$ and if $R/E \geq 50\%$ then $MEDTP > 0$. Median voter tax price could simply be operationalised as a dichotomous variable. However positive MEDTP's can be better approximated by using data on the average domestic rate payment in areas where $R/E \geq 50\%$. It is reasonable to assume that positive median voter rate payments are closely correlated with local domestic tax costs.

2.2.2 *Mean voter interests*

The median voter hypothesis suggests that policies respond to the interests

of a specific segment of the electorate. However, tax decisions may be influenced by the local tax burden on the electorate as a whole. The validity of this alternative perspective can be evaluated by estimating the relationship between the tax price of the average elector and tax policies. Mean voter tax price is specified for each locality as total domestic rate revenue divided by registered electors. If the aggregate interests of the electorate are reflected in tax policies then MEANTP should have a negative impact on ΔRP.

2.2.3 *Central grants*

Central grants are widely considered to be a major constraint on local fiscal autonomy (Bennett, 1982). Grants and rates are substitute sources of funding for net expenditure on services. In recent years central government has reduced the proportion of local service costs met by grants from around 60% to 50%[15]. However a change in tax policy is only one response to a change in grant support. Other responses include service cuts, use of balances, increased use of fees and charges, greater efficiency and 'creative accounting' (Wolman, 1983). Nevertheless, while grant changes may not dominate local tax decisions there is likely to be at least a moderate negative relationship between ΔGR and ΔRP.

The change in central grant support is specified as the annual percentage change in anticipated grant receipts per capita at market prices. ΔGR is measured as anticipated rather than actual grant change because it is the expected grant income which is relevant when the rate decision is taken, prior to the start of the financial year.

2.2.4 *Political disposition*

The most consistent conclusion of studies of local policy variation in England is that political disposition is an important influence on total expenditure and taxation policies. Local disposition towards the level of property tax can be operationalised as the percentage of council seats held by the Labour party. This captures elements both of the disposition of elected representatives and of the wider electorate. On the basis of the traditional disposition of the Labour party towards the role of government a positive relationship between LAB and ΔRP is hypothesised.

2.2.5 *Income*

The level of personal income in each area is likely to influence elite perception of the capacity of the local electorate to bear rate increases and electoral tolerance of such increases. Data on personal income is not available for English local authorities[16]. However, income is closely related to social class. Therefore the proportion of the adult population in the top three social classes (professional, managerial and skilled non-manual) is used as an income proxy.

2.2.6 *Business ratepayers*

The opposition of businesses to rate increases is well established by opinion surveys[17] and case studies of local policy making[18]. Recently a sympathetic Conservative central government endowed business ratepayers with a statutory right to be consulted by local authorities prior to rate decisions[19]. The increased concern by local authorities since the late 1970's to protect the local economy may also have added weight to 'the threat of disinvestment'[20]. The potential opposition of business ratepayers to tax increases is operationalised through the proportion of the tax base which consists of commercial and industrial premises[21]. If this opposition is effective then there should be a negative relationship between BRP and ΔRP.

2.3 *The median voter and mean voter models*

The above discussion suggests the following two models of variations in local tax policies:

I. The median voter model –
$$\Delta RP = a + b_1 MEDTP + b_2 \Delta GR + b_3 LAB + b_4 INC + b_5 BRP$$

II. The mean voter model –
$$\Delta RP = a + b_6 MEANTP + b_2 \Delta GR + b_3 LAB + b_4 INC + b_5 BRP$$

The expected signs on the parameters are:

$$b_1, b_2, b_5, b_6 < 0$$
$$b_3, b_4 > 0$$

If the median voter hypothesis is valid then model I should provide superior statistical results to model II.

The models are tested for all three groups of English lower-tier local authorities in three time periods. The first group of authorities is the 32 London boroughs. The second group is the 36 metropolitan districts which are responsible for the major urban areas outside London (e.g. Birmingham, Sheffield, Manchester, Liverpool, Leeds, Newcastle). The third group, which covers the rest of England, is the 296 non-metropolitan districts. These include rural, suburban and coastal areas as well as cities which rank below London and the major metropolitan districts in the urban hierarchy[22]. Service responsibilities within each of these groups are uniform with the exception of education provision in London. The education service is the direct responsibility of the outer London boroughs but is provided by the Inner London Education Authority in the inner boroughs. To cater for this difference an education provision dummy variable (outer = 1, inner = 0)

is added to the models for the London boroughs.

The models are tested for tax policies in the financial years 1982/3, 1983/4 and 1984/5. It is appropriate to focus on single financial years because in the 1980's very few authorities have planned their finances more than twelve months ahead[23]. Thus tax policy decisions are best modelled as a response to constraints imposed during individual budgetary cycles. The following lag structure is therefore appropriate:

$$\Delta RP_t = f(MEDTP_{t-1}, MEANTP_{t-1}, LAB_{t-1}, BRP_{t-1}, INC_{t-1}, \Delta GR_t)$$

Data availability allows the models to be tested using this lag structure for all variables except INC. Data on INC is available only for 1981. It should therefore be cautioned that the estimated coefficients for the impact of INC on ΔRP may be progressively attenuated by measurement error in the results for 1983/4 and 1984/5.

2.4 *Comparing the models in different political contexts*

All English local political systems are representative democracies in formal structure. However, there are variations in party systems and in electoral arrangements. This diversity permits a comparison of the median voter and mean voter models in different political contexts.

There is no established classification of party systems in English local government. However, authorities can be allocated to one of the following three categories. First, one-party systems where the largest single party holds at least 75% of total council seats. Second, two-party systems where the leading two parties combined seat share is at least 85%. Third, all remaining authorities which can be classified as multi-party systems. Both the Downs' model and previous empirical results suggests that the median voter model should perform best in two-party systems. Ideally, the results for two-party systems would be compared directly with the results for other party systems. However, there is a sufficient number of cases for a direct comparison only in the non-metropolitan districts. In the other two groups of authorities indirect evidence on this issue can be obtained by comparing the results for two-party systems with those for all systems[24].

Electoral arrangements differ both across and within the three groups of authorities. In the London boroughs and the majority of the non-metropolitan districts there are 'whole-council' elections every four years. In the period covered by this analysis these were held in 1982 and 1983 respectively. The discussion in Section 2 suggests that in these years the exposure of politicians to the electorate provides an especially favourable context for the validity of the median voter model. In the metropolitan districts and the remaining non-metropolitan districts there are 'partial council' elec-

tions in three out of every four years. One third of council seats were contested in 1982, 1983 and 1984. In this context the relative performance of the median voter and mean voter models should be more consistent over time because of the sustained exposure of politicians to electoral pressures. There is no a-priori basis on which to predict whether whole council elections or partial council elections provide a more favourable context for the median voter hypothesis. This will be examined in the discussion of the empirical evidence.

3. Empirical evidence

The results of the tests of the models are illustrated in Tables 2 to 4[25]. The models are tested on identical data with the exception of the MEDTP and MEANTP variables. Thus any differences between the results of the two models stem from these two variables.

While the statistical explanation provided by the models is in general only moderate the R^2's are comparable to other studies of annual changes in local outputs[26]. The estimated coefficients for some of the independent variables must be interpreted with caution because of the presence of substantial multicollinearity (see Appendix). Where multicollinearity is high ($R^2 \geq R^2$) the estimated coefficients are inefficient and, while unbiased, imprecise in single small samples. However, this problem does not impair the overall level of statistical explanation as a basis for comparing the performance of the median and mean voter models.

3.1 *The explanation provided by the models*

The overall level of statistical explanation is generally better for the mean voter model than for the median voter model. The position is reversed only in the results for non-metropolitan districts with two-party systems (see below). Elsewhere the mean model provides R^2's and F's which are either higher than or approximately equal to the median model. The S.E.R. figures suggest the same conclusion[27]. The estimate of ΔRP produced by the regressions is generally more precise when MEANTP is included than when MEDTP is included.

3.2 *The coefficients for MEDTP and MEANTP*

In most of the regressions multicollinearity may have reduced the precision and significance of the estimated coefficients for MEANTP and, to a lesser extent, for MEDTP. Therefore to provide further insight the change in R^2 when MEDTP and MEANTP are added to the regression models is also

Table 2. OLS regression results, London boroughs, (n = 32)

	1982		1983		1984	
	Median	Mean	Median	Mean	Median	Mean
R^2	0.35	0.42*	0.45*	0.68***	0.55**	0.63***
F	2.20	3.04	3.41	8.91	5.0	7.11
S.E.R.	14.74	13.85	27.87	21.22	8.15	7.35
RSQCH	0.04	0.11*	0.03	0.26***	0.00	0.09
MEDTP	0.03		−0.04		0.00	
	(0.02)		(0.03)		(0.01)	
MEANTP		−0.13*		−0.34***		−0.06*
		(0.06)		(0.07)		(0.02)
ΔGR	−0.70	−0.68*	−0.56	−0.76**	−0.19	−0.15
	(0.36)	(0.33)	(0.28)	(0.22)	(0.12)	(0.11)
INC	0.26	−0.28	0.56	2.08*	0.26	0.71*
	(0.70)	(0.72)	(1.10)	(0.91)	(0.34)	(0.35)
LAB	0.01	−0.11	0.52	0.86*	0.22	0.32*
	(0.24)	(0.24)	(0.42)	(0.33)	(0.13)	(0.12)
BRP	−0.07	−0.40	−1.78*	−1.14	−0.35	−0.12
	(0.41)	(0.42)	(0.81)	(0.64)	(0.18)	(0.18)
OUTER	15.34	15.60*	−45.08*	−52.98***	−9.21*	−14.50***
	(9.26)	(7.21)	(16.75)	(10.84)	(4.45)	(3.90)
Constant	−21.32	−3.84	80.09	52.71	19.95	0.05
	(38.33)	(37.23)	(62.97)	(48.29)	(18.58)	(17.21)

Notes

1. Standard errors in brackets.
2. Significance levels – * ≥ 0.05;
   ** ≥ 0.01;
   *** ≥ 0.001.

Table 3. OLS regression results, non-metropolitan districts, partial council elections, single and multi-party systems

	1982 (n = 55)		1983 (n = 51)		1984 (n = 60)	
	Median	Mean	Median	Mean	Median	Mean
R^2	0.39***	0.41***	0.34**	0.40***	0.13	0.13
F	6.38	6.78	4.64	6.04	1.61	1.63
S.E.R.	11.23	11.09	16.29	15.52	13.90	13.89
RSQCH	0	0.02*	0	0.06*	0.01	0.01
MEDTP	−0.01		−0.003		0.01	
	(0.02)		(0.02)		(0.02)	
MEANTP		−0.11		−0.24*		−0.08
		(0.09)		(0.11)		(0.09)
ΔGR	−0.53***	−0.54***	−1.32***	−1.64***	−0.41*	−0.42*
	(0.11)	(0.11)	(0.36)	(0.37)	(0.19)	(0.19)
INC	0.50	0.83*	0.12	0.59	−0.30	−0.18
	(0.30)	(0.36)	(0.44)	(0.44)	(0.35)	(0.41)
LAB	0.02	0.06	0.08	0.09*	−0.15	−0.17
	(0.13)	(0.13)	(0.17)	(0.15)	(0.13)	(0.13)
BRP	−0.22	−0.15	−0.17	0.01	0.51	0.55
	(0.27)	(0.28)	(0.39)	(0.37)	(0.27)	(0.28)
Constant	−5.62	−9.47	9.41	19.61	6.48	13.51
	(14.79)	(13.50)	(21.46)	(19.55)	(17.89)	(16.56)

Table 4. OLS regression results, non-metropolitan districts, partial council elections, two-party systems

	1982 (n = 48)		1983 (n = 52)		1984 (n = 59)	
	Median	Mean	Median	Mean	Median	Mean
R^2	0.32**	0.30**	0.30**	0.22*	0.19*	0.19*
F	4.03	3.53	3.98	2.63	2.55	2.45
S.E.R.	11.22	11.46	8.10	8.55	9.03	9.06
RSQCH	0.03	0	0.08*	0	0.01	0
MEDTP	−0.03		−0.03		−0.01	
	(0.02)		(0.02)		(0.01)	
MEANTP		−0.01		−0.02		−0.001
		(0.09)		(0.06)		(0.06)
ΔGR	−0.43**	−0.42**	−0.46**	−0.49**	−0.48*	−0.46
	(0.13)	(0.13)	(0.13)	(0.15)	(0.22)	(0.23)
INC	0.01	0.18	0.10	−0.10	0.46*	0.41
	(0.26)	(0.28)	(0.20)	(0.23)	(0.18)	(0.22)
LAB	0.17	0.11	0.01	−0.07	0.04	0.06
	(0.10)	(0.09)	(0.08)	(0.08)	(0.08)	(0.07)
BRP	−0.70*	−0.72*	−0.06	−0.13	−0.51*	−0.52*
	(0.27)	(0.28)	(0.19)	(0.20)	(0.21)	(0.21)
Constant	−10.12	−22.40	1.53	17.72	43.43***	40.83***
	(15.21)	(12.66)	(11.88)	(10.26)	(10.83)	(10.15)

considered (see RSQCH figures in Tables 2 to 4).

The estimated coefficients provide no support for the hypothesis for MEDTP. The relationship between MEDTP and ΔRP fluctuates in sign and is never significant at 0.05 level. By contrast the results offer some support for the MEANTP hypothesis. The estimated coefficients for MEANTP are uniformly negative, but are consistently significant only in the London borough regressions.

The RSQCH figures largely corroborate the evidence provided by the regression coefficients. The one exception is in the results for 1983 in Table 4. While the coefficient for MEDTP is not significant, the RSQCH figure indicates that the variable adds significantly to the explanatory power of the model.

In general then neither MEDTP nor MEANTP is a pervasive influence on local tax policies. In the London boroughs MEANTP is substantially more important than MEDTP; in the metropolitan districts neither variable is a significant constraint on ΔRP; and in the non-metropolitan districts each variable is occasionally but not frequently significant.

3.3 *The relative performance of the models in different party systems*

In the London boroughs and metropolitan districts the relative performance of the median and mean models differs little between all authorities and two-party systems. Thus in these two groups of authorities there is no evidence that two-party systems facilitate the impact of median voter interests on tax policies.

However, the pattern is different in the non-metropolitan districts. The mean voter model is superior in single and multi-party systems; but the median voter model provides better results than the mean model in two-party systems. The difference in the performance of the models is not great. However, the pattern is consistent in both the whole-council election and partial-council election groups. This suggests that in the non-metropolitan districts the impact of median voters on tax policies is slightly enhanced by the presence of a two-party system.

There are several possible reasons why two-party systems appear to provide a more favourable context for the median voter model in the non-metropolitan districts but not in the major urban authorities. First, the difference in the results across the groups of authorities may be an artefact of the method of analysis. If it had been possible to compare directly two-party system results with other party system results for the London boroughs and metropolitan districts then a pattern similar to that in Tables 3 and 4 might have emerged. Second, there may be substantive reasons for the difference. In comparison to the two groups of urban authorities the non-metropolitan districts provide a smaller range of services which are less professionalised

and less salient in national politics. Thus the role of large professional bureaucracies or central government may overwhelm local electoral considerations in urban authorities but not in the non-metropolitan districts[28]. A further substantive reason for the difference is the relative size of the authorities. Average population in the urban groups is over three times as large as in the non-metropolitan districts. Smaller populations may facilitate the identification of and response to median voter interests in two-party systems[29].

3.4 *The role of election systems*

The results do not suggest that the potential exposure of politicians to electoral pressure strengthens the impact of median voters on tax policies. The performance of the median voter model relative to the mean voter model is not better in years when the whole council was elected, either in the London boroughs or in the non-metropolitan districts. Similarly, there is little difference in the relative performance of the models between whole-council election and partial-council election authorities. Thus there is no evidence that either the imminence of an election or the type of election system influences the validity of the median voter model.

3.5 *The other independent variables*

The presence of multicollinearity constrains the interpretation of the coefficients for ΔGR, LAB, INC and BRP in the London regressions; and the interpretation of the coefficients for LAB and INC elsewhere. However, most of the coefficients have the expected signs and there is only one which is significant with the 'wrong' sign.

The impact of ΔGR on ΔRP is consistently negative and is significant in most contexts. INC generally has the hypothesised positive sign in the London and non-metropolitan district results but the coefficients are rarely significant. In the metropolitan district regressions INC fluctuates in sign and is never significant. BRP is almost uniformly negative in sign as expected but is not frequently significant. The hypothesis for LAB is not well supported. The estimated coefficients are not consistently positive in any group of authorities. While several of the positive coefficients are significant one of the negative coefficients is also significant[30].

In general, then, the evidence indicates that the influence of central grants on local tax policies is more systematic and pervasive than the influence of either the local tax costs of the electorate or the interests of businesses ratepayers. A precise evaluation of the role of political disposition and personal incomes is clouded by multicollinearity, but these variables also appears to be less important than central grants.

4. Conclusion

The statistical results offer little support for the median voter hypothesis. Most of the evidence indicates no significant relationship between median voter and tax policy variables. The median voter model performs better than the rival mean voter model only in smaller local authorities where there is a two-party system. However, even here the impact of the median voter is weak.

Thus the evidence is not consistent with Inman's (1978) claim that politics can be 'buried' in the median voter. Median voter interests appear to be a poor proxy for the aspects of local political systems which influence policy variation.

However, it must be emphasised that these results provide only initial evidence on the validity of the median voter hypothesis for one type of policy decision by local political systems in England. The evidence is not sufficient to imply a need to amend the median voter model or abandon it in favour of yet further theories of policy formation. As Rogowski (1978) has argued, progress towards 'normal science' in the study of politics has been prevented by a proliferation of theories which mostly constitute 'mere jargon'[31]. Conclusions on the utility of the median voter model can only be tentative until there is much more evidence than provided by the dozen empirical analyses published in the last 20 years.

NOTES

1. The term 'median voter' is not actually part of Downs' (1957) lexicon. On the genesis of median voter models of direct and representative democracy see Mueller (1979).
2. A major recent investigation of the role of politics in local policy variation is Sharpe and Newton (1984). For a review of the American and British studies in this field see Boyne (1985).
3. For example Barry (1978), Dunleavy and Ward (1981).
4. For example Davies et al. (1970), Comanor (1976). For a synthesis of the literature see Austen-Smith (1983).
5. Downs (1957: 21). For critiques of the 'irrelevance of assumptions' position see Blaug (1980) and Toye (1976). For a broader evaluation of the 'scientific' content of rational models see Moe (1979).
6. Barr and Davies and subsequent studies use various proxies for median tax price and median income. See Romer and Rosenthal (1979) for a critique of the specification of these variables.
7. Results consistent with the median voter hypothesis are obtained by Bergstrom and Goodman (1973), Inman (1978), Lovell (1978), Holcombe (1980) and Sjoquist (1981). However, the results of Romer and Rosenthal (1982) do not support the median voter model.
8. See Mueller (1979), Romer and Rosenthal (1979).
9. The most frequently used measure is per capita income. See Boyne (1985) for a discus-

sion of the specification of the explanatory variables and a summary of the results in these studies.

10. Pommerehne and Frey claim that their results show that the median model is superior. However, there is very little difference between the R^2's. The different significance of the median and mean voter variables probably reflects multicollinearity. See Romer and Rosenthal (1979).
11. See Sharpe (1981) for a discussion of local tax revenue in Western Europe.
12. The reasons for the political salience of rates are discussed in detail in Newton and Karran (1985).
13. On fiscal illusion see Wagner (1976). The term usually refers to the underestimation of the price of public services. On 'reverse' fiscal illusion see Pommerehne and Schneider (1978).
14. This point has recently been used to justify proposed reforms to local taxation which would replace domestic rates with a poll tax. See Department of the Environment, Scottish Office and Welsh Office (1986).
15. See Association of County Councils (1985) for a discussion of recent trends in central grants.
16. See Foster et al. (1980) for a discussion of the problems of constructing an income proxy.
17. See for example Jackman (1978). On the impact of rates on businesses see Crawford et al. (1985).
18. Dearlove (1973), Saunders (1979).
19. Under the 1984 Rates Act.
20. See Piven and Friedland (1984) for a discussion of the importance of this source of business power.
21. For similar measures of business power in studies of subnational policy variation in the USA see Game (1980) and Perry (1981).
22. For a discussion of this concept and the rank order positions of English cities see Sharpe and Newton (1984).
23. For a survey of financial planning in local authorities see Audit Commission (1984).
24. The small number of two-party systems in the London boroughs and metropolitan districts creates the danger of outliers dominating the results. However, inspection of the scatterplots and of the residuals from the regressions indicated that the results were not seriously distorted by deviant cases.
25. The results of the regressions for the other groups of authorities are available upon request from the author.
26. There are no previous studies of the determinants of financial output change in England. Studies in the USA of changes in taxes and expenditures have yielded average R^2's of around 30–40%.
27. Achen (1982) argues that the S.E.R. is a superior measure of 'goodness of fit' to the R^2.
28. On the impact of bureaucratic power on local policy variation see Boyne (1987).
29. For a discussion of the relationship between size and democracy see Newton (1982). On constituency size and the responsiveness of representatives see Greene and Salavitabar (1982).
30. In the two-party metropolitan district results for 1982.
31. Rogowski (1978: 307).

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APPENDIX

R_i^2 for independent variables in Tables 2 to 4

Table 2

	1982		1983		1984	
	Median	Mean	Median	Mean	Median	Mean
MEDTP	0.62		0.57		0.60	
MEANTP		0.59		0.56		0.63
ΔGR	0.53	0.52	0.55	0.58	0.18	0.19
INC	0.84	0.87	0.77	0.81	0.79	0.84
LAB	0.85	0.86	0.81	0.82	0.83	0.84
BRP	0.57	0.65	0.62	0.64	0.34	0.47
OUTER	0.66	0.51	0.63	0.49	0.55	0.52

Table 3

	1982		1983		1984	
	Median	Mean	Median	Mean	Median	Mean
MEDTP	0.41		0.38		0.25	
MEANTP		0.46		0.56		0.54
ΔGR	0.01	0.02	0.19	0.27	0.12	0.18
INC	0.57	0.63	0.59	0.66	0.50	0.65
LAB	0.59	0.48	0.59	0.51	0.54	0.49
BRP	0.42	0.43	0.43	0.44	0.43	0.45

Table 4

	1982		1983		1984	
	Median	Mean	Median	Mean	Median	Mean
MEDTP	0.20		0.27		0.18	
MEANTP		0.53		0.57		0.53
ΔGR	0.05	0.05	0.37	0.45	0.11	0.15
INC	0.64	0.76	0.67	0.70	0.60	0.71
LAB	0.73	0.71	0.69	0.63	0.65	0.63
BRP	0.45	0.47	0.40	0.42	0.34	0.39

CHAPTER IV

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Bureaucratic Power and Public Policies: a Test of the Rational Staff Maximization Hypothesis

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This paper tests the staff maximization hypothesis that bureaucratic power is positively related to labour inputs to the production of public sector goods and services. The context of the test is the staffing policies of three groups of British local authorities in three time periods. The relationship between bureaucratic power and changes in authorities' staff is estimated while controlling for the influence of local party politics, central grants and conditions in the environment of the local political system. The results of the statistical analysis refute the staff maximization hypothesis.

A widely held assumption in political science is that bureaucrats, defined broadly as the senior staff of governmental organizations, can bias public policies towards their own preferences. The theoretical support for this assumption stems largely from the rational choice theory of utility maximization by self-interested actors. The empirical support stems from case studies of policy decisions or from the general observation that much of the policy process flows through bureaucratic channels. This paper attempts to estimate the relationship between buraucratic power and public policy on a systematic comparative basis. The policy area within which this relationship is estimated is one which might be expected to be particularly sensitive to the effect of bureaucratic power: the number of state employees.

Since shortly after the 1979 general election the Conservative government has exhorted local authorities to shed staff as part of a wider strategy aimed at reducing the size and functions of the state. The response of local authorities has varied greatly—while most have cut staff some have recruited additional employees. The staff maximization hypothesis predicts that those authorities where bureaucrats are most powerful will suffer the least severe staff cuts. This hypothesis is tested by examining the relationship between bureaucratic power and staffing policies while controlling for other relevant variables such as local socioeconomic conditions, financial resources and party politics.

The analysis below is in three parts. Part I surveys the rational choice literature on bureaucratic behaviour and summarizes existing empirical results about the relationship between characteristics of the bureaucracy and local policy variation. Part II presents a model of variations in staffing policies and

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specifies the variables through which the model is tested. Part III presents the results of various forms of the model.

I. Bureaucrats and Policies: Theory and Evidence

Rational Bureaucrats?

Rational choice theory seeks to explain bureaucratic behaviour on the basis of the fundamental economic assumption of utility maximization.[1] Put simply, the theory predicts that from a range of policy options those policies which most closely match bureaucrats' preferences will be selected. A critical element in rational choice theory is therefore the 'arguments' in bureaucrats' utility functions. It is through the specification of this utility that bureaucratic behaviour and its potential implications for public policy can be deduced. However, the rational choice literature bristles with conflicting assumptions about bureaucrats' utility and the consequences of bureaucratic behaviour.

The rational choice perspective was first formalized by Niskanen[2] in a model which predicts the oversupply of public sector goods and services on the basis of three assumptions. The first is that bureaucrats' utility is positively related to budget size. The second is that bureaucrats have the capacity to maximize their budgets. Niskanen argues that the power distribution between bureaucrats and their political sponsors who provide funds is heavily weighted in favour of bureaucrats. Because actual costs of production are known only to bureaucrats it is possible to hoodwink political sponsors into providing funds surplus to that necessary to produce the output 'really' demanded. The third assumption is that bureaucrats spent their 'discretionary budget' on extra units of output.

Subsequent developments in the rational choice literature have largely accepted Niskanen's assumption that bureaucrats *desire* budget maximization.[3] However, the assumptions that bureaucrats have the *capacity* for budget maximization and that surplus funds are allocated to *output* have been disputed. It has been widely argued that Niskanen over-emphasizes the ability of bureaucrats to avoid effective 'monitoring' by politicians.[4] It is accepted, however, that bureaucrats possess some capacity to manipulate information. The level of this capacity determines whether more revenue is acquired than

[1] For a review of the broader literature on bureaucracy see B. Jenkins and A. Gray, 'Bureaucratic politics and power: developments in the study of bureaucracy', *Political Studies*, 31 (1983), 177–93; T. Moe, 'The new economics of organisation', *American Journal of Political Science*, 28 (1984), 739–77.

[2] W. A. Niskanen, *Bureaucracy and Representative Government* (Chicago, Aldine-Atherton, 1971). For a discussion of the nature of formal models see M. P. Fiorina, 'Formal models in Political Science', *American Journal of Political Science*, 19 (1975), 133–59.

[3] The budget maximization assumption has been criticized on the basis that some bureaucrats may prosper by budget cutting. See, for example A. Breton and R. Wintrobe, 'The equilibrium size of a budget maximising bureau: a note on Niskanen's theory of bureaucracy', *Journal of Political Economy*, 83 (1975), 195–207.

[4] See for example Breton and Wintrobe, 'The equilibrium size of a budget maximising bureau'; J. Conybeare, 'Bureaucracy, monopoly and competition: a critical analysis of the budget maximising model of bureaucracy', *American Journal of Political Science*, 28 (1984), 479–502; G. Miller and T. Moe, 'Bureaucrats, legislators and the size of government', *American Political Science Review*, 77 (1983), 297–322.

that needed to produce 'efficiently'. For the purposes of this paper the implication is that bureaucratic power is not constant but varies across local political systems.

Niskanen's assumption that surplus revenue is allocated to output has been criticized on the basis that bureaucrats may spend their discretionary budget in a variety of ways.[5] To the extent that surplus revenue is allocated solely to output the opportunity to spend on other commodities and activities must be forgone. The key argument for the purposes of this analysis is that bureaucrats' utility may be maximized not through the level of output but through the level of *labour inputs* to the production process.[6] This 'staff maximization hypothesis' is adduced rather than derived logically. It therefore has no greater or firmer status than any other hypothesis about how bureaucrats might spend the money obtained by disguising true costs of production. However, the idea that public sector organizations are 'overstaffed' may have an intuitive appeal parallel to that of 'Parkinson's Law', which states that bureaucracy expands even in the context of declining output.[7]

While critiques of Niskanen's model abound, the discussion is virtually uncontaminated by data. Indeed, even the budget maximization assumption has not been directly tested. Several authors, including Niskanen himself, provide evidence which is consistent with budget maximization[8] but there is also evidence which is inconsistent with it.[9] The major questions therefore remain largely unanswered: how great is the desire for surplus funds? how great is the capacity to secure such funds? and how is the discretionary budget spent?

This analysis retains the assumption that bureaucrats' utility is positively related to budget size. The assumption of a uniformly powerful bureaucracy which bamboozles politicians in the budgetary process is, however, relaxed. On this basis the staff maximizaton hypothesis is tested within the context of the model of variations in staffing policy developed below. First, empirical analyses of local policy variation are examined for evidence on the effect of bureaucratic power.

[5] See for example J. Migue and G. Belanger, 'Toward a general theory of managerial discretion', *Public Choice*, 17 (1974), 27–43; R. E. Goodin, 'Rational politicians and rational bureaucrats in Washington and Whitehall', *Public Administration*, 60 (1982), 23–41. Niskanen has conceded this point. See W. A. Niskanen, 'Bureaucrats and politicians', *Journal of Law and Economics*, 18 (1975), 617–43.

[6] See M. Fiorina and G. Noll, 'Voters, bureaucrats and legislators', *Journal of Public Economics*, 9 (1979), 239–54; W. Orzechowski, 'Economic models of bureaucracy: surveys, extensions and evidence', in T. E. Borcherding (ed.), *Budgets and Bureaucrats* (Durham, N.C., Duke University Press, 1977); W. Pommerehne and B. S. Frey, 'Bureaucratic behaviour in a democracy: a case study', *Public Finance/Finances Publiques*, 33 (1978), 98–111.

[7] See A. Breton and R. Wintrobe, 'Bureaucracy and state intervention: Parkinson's Law', *Canadian Public Administration*, 22 (1979), 208–26; G. A. Boyne, 'Housing administrators and empire building: a test of Parkinson's Law', *Public Policy and Administration*, 1 (1986), 18–32.

[8] Niskanen, 'Bureaucrats and politicians'; R. M. Spann, 'Rates of productivity change and the growth of state and local expenditures', in Borcherding (ed.), *Budgets and Bureaucrats*; T. E. Borcherding, W. C. Bush and R. M. Spann, 'The effects on public spending of the divisibility of public outputs in consumpton, bureaucratic power, and the size of the tax sharing group', in Borcherding (ed.), *Budgets and Bureaucrats*.

[9] J. H. Beck, 'Budget maximising bureaucracy and the effects of state aid on school expenditures', *Public Finance Quarterly*, 9 (1981), 159–82; T. G. McGuire, 'Budget maximising governmental agencies: an empirical test', *Public Choice*, 36 (1981), 313–22.

Bureaucrats and Local Policy Variation

Measures of various characteristics of the bureaucracy have been used as independent variables in over a dozen studies of influences on sub-national policy variation in the US and Western Europe.[10] The principal characteristics measured are bureau size (ratio of staff to local population), organizational structure (vertical and horizontal differentiation) and 'professionalism' (pay and qualifications). It is characteristic of such studies of local policy variation that neither the specification of bureaucratic variables nor the results for their relationship to policy variables are much discussed.[11] In addition, the different control variables used make it difficult to compare the net effect of the bureaucracy in different studies. These studies therefore offer little guidance for further analysis of the relationship between bureaucratic power and policies.

The British studies of local policy variation which use measures of the bureaucracy as independent variables display similar problems. Nicholson and Topham use an 'impetus' variable to estimate the influence of the bureaucracy on housing policies.[12] The concept of impetus is operationalized through previous housing policy outputs. Previous policies are interpreted as a measure of 'technostructure attitudes to the task of building houses, reflecting the dynamic of the town hall machine'.[13] Previous policies are used in the same way in Nicholson and Topham's subsequent study of expenditure on roads and by Danziger in an analysis of a range of local service expenditures.[14] The major problem in using previous policy outputs as a proxy for bureaucratic power is the great distance between the concept and its operationalization. Previous policy outputs are likely to have been the product of the same gamut of forces as current policy outputs. Therefore, while bureaucratic power may be contained somewhere in the impetus variable, its extent is unknown.

Several British studies use the fragmentation of local authorities' organizational structure as an indicator of the 'autonomy' of the bureaucracy.[15]

[10] A full list of these American studies is provided in G. A. Boyne, 'Theory, methodology and results in political science—the case of output studies', *British Journal of Political Science*, 15 (1985), 473–515. For bureaucracy variables in European studies see: R. C. Fried, 'Party and policy in West German cities', *American Political Science Review*, 70 (1976), 11–24; T. Hansen and F. Kjellberg, 'Municipal expenditures in Norway: autonomy and constraints in local government activity', *Policy and Politics*, 4 (1976), 25–50; M. Aiken and S. Bacharach, 'The urban system, politics and bureaucratic structure', in L. Karpic (ed.), *Organisation and Environment: Theory, Issue and Reality* (London, Sage, 1978); T. Hansen, 'Transforming needs into expenditure decisions', in K. Newton (ed.), *Urban Political Economy* (London, Frances Pinter, 1981).

[11] The only useful discussions are in G. W. Downs, *Bureaucracy, Innovation and Public Policy* (Lexington, Mass., D. C. Heath, 1976); and Aiken and Bacharach, 'The urban system, politics and bureaucratic structure'.

[12] R. J. Nicholson and N. Topham, 'The determinants of investment in housing by local authorities: an econometric approach', *Journal of The Royal Statistical Society*, Series A, 134 (1971), 273–303.

[13] Nicholson and Topham, 'The determinants of investment', p. 285.

[14] R. J. Nicholson and N. Topham, 'Urban road provision in England and Wales 1962–68', *Policy and Politics*, 4 (1975), 3–29; J. N. Danziger, *Making Budgets* (Beverly Hills, Calif., Sage, 1978).

[15] N. T. Boaden, *Urban Policy Making* (Cambridge, Cambridge University Press, 1971); B. P. Davies, A. Barton, I. McMillan and V. Williamson, *Variations in Services for the Aged* (London, G. Bell and Sons, 1971); T. Karran, 'Borough politics and county government: administrative styles in the old structure', *Policy and Politics*, 10 (1982), 317–42.

Boaden, for example, argues that the number of separate council committees and sub-committees reflects the extent to which 'chief officers are pursuing a professionally based appeal for the expansion of their services'.[16] Boaden's results show a weak positive partial correlation between bureaucratic autonomy and only one of 11 policy outputs examined.[17] Davies *et al.* also find a positive effect of the autonomy of the welfare bureaucracy on the share of total expenditure allocated to welfare provision and on a minority of the sub-function welfare outputs which they analyse.[18] However, they note that these relationships may well be coincidental rather than causal, with both organizational structures and levels of welfare provision reflecting common historical influences.[19] Karran concludes that organizational structure influences most service expenditures but indicates neither the strength nor the direction of this influence.[20] Measures of the 'professionalism' or 'expertise' of the bureaucracy are also included in a number of analyses of policy variation.[21] However, the indicators used are again problematic and little evidence is yielded about the relationship between this characteristic of the bureaucracy and public policies.[22]

The final dimension of the bureaucracy used as an explanatory variable in British studies of local policy variation is 'size'. Storey uses staff per head of population as a measure of bureaucratic power in an analysis of staffing policies in the London Boroughs.[23] The bureau size variable was not found to be significantly related to staffing policies when socioeconomic and political features of the boroughs were held constant. However, the use of staff per head of population as a proxy for bureaucratic power involves the same problem as the use of previous policy outputs. The ratio of staff to population is likely to reflect a variety of forces in addition to attempts by bureaucrats to maximize staff.

The above discussion has highlighted the limitations of both the theory and the evidence about the relationship between bureaucrats and public policies.

[16] Boaden, *Urban Policy Making*, p. 33.

[17] Expenditure on children's services.

[18] Davies *et al.*, *Variations in Services for the Aged.*

[19] Davies *et al.*, *Variations in Services for the Aged*, p. 133.

[20] Karran, 'Borough politics and county government', p. 332.

[21] Boaden, *Urban Policy Making*; Karran, 'Borough politics and county government'; B. P. Davies, A. Barton and I. McMillan, *Variations in Children's Services among British Urban Authorities* (London, G. Bell and Sons, 1972).

[22] In Boaden, *Urban Policy Making*, the measure of professionalism is whether the local authority has employed an organization and methods or work study consultant. The variable is not sufficiently important to be entered in any of the partial correlation analyses. In Karran, 'Borough politics and county government', one of the initial variables is chief officer membership of professional associations. This variable subsequently sinks without trace into one of the 'administrative factors' constructed from the initial variables. Davies *et al.*, *Variations in Children's Services among British Urban Authorities*, offers the most detailed discussion of this aspect of the bureaucracy. A number of measures of 'staff calibre' are specified. However these are used as independent variables only in the zero-order correlational analysis. In the path analysis models the measures of staff calibre are dependent variables.

[23] D. J. Storey, 'The economics of bureaux: the case of the London boroughs 1970–76', *Applied Economics*, 12 (1980), 223–34. Karran, 'Borough politics and county government', also uses a bureau size variable. However, like his 'professionalism' variable this is lost in an administrative factor.

The rational choice literature consists of a variety of conflicting assumptions about how bureaucrats spend their discretionary budgets. In this context the staff maximization hypothesis must be regarded as one of a set of plausible conjectures each of which is more or less 'free standing'. Thus evidence on staff maximization neither directly undermines nor supports the budget maximization assumption. Strictly, evidence against the staff maximization hypothesis simply suggests that if surplus funds are being extracted by bureaucrats then they are spending the money on something other than labour inputs. Similarly, evidence for staff maximization simply suggests the ability to implement a preference for a particular factor of production, not an ability to extract surplus funds or to produce 'inefficiently'.

Empirical analyses of the relationship between characteristics of the bureaucracy and local policy variation have yielded little useful evidence. In addition to sharing the general problems in the analysis of local policy variation,[24] the studies display the particular problem of the poor operationalization of the concept of bureaucratic power. The result of these problems is an absence of cumulative evidence on the impact of bureaucrats on policies.[25] In this context, the empirical analysis below must be regarded as largely exploratory.

II. A Model of Staffing Policies

When estimating the influence of bureaucratic power on public policies it is necessary to control for other potential influences. The bivariate relationship between bureaucratic power and policies is a crude measure which is unequal to the task of identifying the net influence of bureaucrats.[26] The rational choice literature does not deal with the question of which other variables should be held constant when estimating the effect of bureaucratic power. Monitoring by political sponsors is the only suggested constraint on bureaucratic behaviour. However, it is necessary to place bureaucratic power in a wider context. The rational choice perspective on bureaucratic behaviour is a 'partial' theory which must be tested within a more general model of policy making.

The general model used in this analysis is a simplified version of Easton's system framework. This model has been widely applied to the problem of explaining local policy variation. Stated formally, the model can be expressed as

$$p = f(E, I, PM)$$

where p = staffing policies
E = conditions in the environment of the local political system
I = inputs to the local political system
PM = characteristics of local policy-makers

[24] See Boyne, 'Theory, methodology and results in political science'.

[25] On the issue of cumulation in political science in general, see G. Sjoblom, 'The cumulation problem in political science: an essay on research strategies', *European Journal of Political Research*, 5 (1977), 1–32.

[26] An analysis of bureaucratic power at central government level which examines only bivariate relationships is C. Hood, M. Huby and A. Dunsire, 'Bureaucrats and budgeting benefits: how do British central government departments measure up?', *Journal of Public Policy*, 4 (1984), 163–79.

TABLE 1. Variables and Hypotheses for Staff Change Regressions.

Concept	Operationalization	Label	Source	Expected sign
Staffing policy	% Change in Staff, 1980/81–1981/82, 1981/82–1982/83, 1982/83–1983/84	CHSTAF81, 82, 83	1	
Policy-makers	(a) Initial Staffing Level, 1980	BURPOW	5	+
	(b) Staff per 1,000 Population, 1980	SIZE	1	?
	(c) % Labour Seats, 1981/82, 1982/83, 1983/84	LAB	6	+
	(d) % Conservative Seats, 1981/82, 1982/83, 1983/84	CON	6	–
Inputs	% Change in Central Government Grant Support, 1980/81–81/82, 1981/82–82/83, 1982/83–83/84	SQZ	4	+
Environmental conditions	(a) % Change in Population, 1980–81, 1981–82, 1982–83	POPCH	2	+
	(b) % Population aged 0–15 plus % Population over pensionable age, 1981	DEPS	3	+
	(c) % Population in social classes E and F, 1981	LOCLAS	3	+
	(d) % Households with no inside WC, 1981	NOWC	3	+
	(e) % Males aged 16–65 unemployed, 1981	UN	3	+

Sources:
1. *Joint Manpower Watch press notices* (Department of the Environment, Welsh Office, quarterly 1980–84)
2. *Local Authority Vital Statistics* (London, Office of Population Censuses and Surveys, 1980–83)
3. *1981 Census*
4. *Financial, General and Rating Statistics* (Chartered Institute of Public Finance and Accountancy, 1980/81 to 1983/84)
5. See Table 4 below
6. *Municipal Year Book*, 1975 to 1984

The version of this general model used here is simplified in that the statistical specification is in the form of a single equation. This is because the focus of the analysis is the bureaucratic power variable. No attempt is made to construct a comprehensive causal model of variations in staffing policies. In the absence of any theory of local staffing policies it is premature to decompose the total effect of independent variables estimated from the single equation model into direct and indirect effects. The specification of a structural equation system which reflects how each independent variable influences staffing policies must await further theoretical and empirical development. Accordingly, the statistical results derived are not used to evaluate the 'relative importance' of the political

and environmental variables. Such comparisons are inappropriate on the basis of the estimated coefficients from a single equation.[27]

The variables through which the model is specified and the hypotheses to be tested are set out below and are summarized in Table 1.

The Dependent Variable: Staffing Policies

The concept of staffing policies is operationalized as the percentage change in full-time staff in three time periods: 1980/81 to 1981/82, 1981/82 to 1982/83 and 1982/83 to 1983/84.[28] The figures are taken from the Joint Manpower Watch which is published quarterly. The Manpower Watch compares staff levels in one year with those of the previous year on a day in the same month. To reduce the measurement error contained in such 'snapshots' the average annual change across the four Manpower Watch data points (June, September, December and March) is used as the dependent variable in the analysis. The staffing policies of three groups of local authority are analysed: first, the 20 outer London boroughs and 36 metropolitan districts; secondly, the 296 English non-metropolitan districts; and thirdly, the 37 Welsh districts. Service responsibilities within each group of authorities are uniform. Therefore separate analyses effectively control for different responsibilities as a possible source of variation in changes in staffing.[29] An indication of the scale of staff

[27] See M. Lewis-Beck and L. B. Mohr, 'Evaluating effects of independent variables, *Political Methodology*, 3 (1976), 27–47.

[28] The figures exlude staff in the Police, Magistrates Courts and Probation Services. In these services the Conservative government has encouraged expansion. Figures for only full-time staff are used because the part-time figures are not comparable across authorities or over time within individual authorities (see Joint Manpower Watch press notices). The restriction of the analysis to full-time staffing levels should not seriously distort the results. Over the relevant period full-time staff represented approximately 81 per cent of total full-time equivalent staffing for local government as a whole. This proportion is lower for the outer London boroughs and metropolitan districts because of the heavy concentration of part-time employees in Education and the Personal Social Services. However, for the English non-metropolitan districts and Welsh districts full-time staff represent approximately 93 per cent of total full-time equivalent staffing (figures derived from Manpower Watch press notices).

[29] A problem of variation in service responsibilities which must be tackled is that some authorities have shed staff through substantial privatization programmes, principally in the area of refuse collection. The Manpower Watch figures for these authorities show staff decreases as large as 25 per cent in a single year. However, the actual reduction in the number of jobs as a result of the switch to private contractors is unknown. It is therefore inappropriate to compare the figures for these authorities with those for the bulk of authorities where direct responsibility for service provision has been retained. In addition, privatization involves a change in the functional scope of government which is substantively different from mere staff reductions. Authorities where considerable privatization has occurred are therefore excluded from the analysis for the year in which the related staff changes occurred.

The excluded authorities are:

Outer London Boroughs and Metropolitan Districts: Merton, Wirral.

English Non-Metropolitan Districts: Babergh, Basingstoke, Bath, Chiltern, Eastbourne, Fylde, Mendip, Milton Keynes, North Norfolk, Penwith, Sevenoaks, South Kesteven, Southend, South Oxfordshire, Tandridge, Taunton Deane, Vale of White Horse.

Welsh Districts: Afan is excluded because major repairs to its housing stock caused a large temporary increase in its labour force in 1982 followed by a large reduction when the programme was completed in 1984.

TABLE 2. Mean Percentage Changes in Staffing Levels (x) and Number of Authorities Increasing (+) and Decreasing (−) Staff.

	Outer London boroughs and metropolitan districts			English non-metropolitan districts			Welsh districts		
	$\bar{x}$	+	−	$\bar{x}$	+	−	$\bar{x}$	+	−
CHSTAF81	−2.1	7	45	−2.5	44	236	−3.2	4	29
CHSTAF82	−1.3	11	42	−1.2	88	190	−0.3	16	18
CHSTAF83	−0.4	20	33	0.2	160	112	−0.8	16	18

Note: Figures for increases and decreases do not add up to the total of authorities in each group because of missing and excluded cases

changes taking place is given in Table 2 which shows the mean percentage changes and the number of authorities increasing and decreasing staff in each year. Together the three time periods and three categories of authority allow the examination of the effect of bureaucratic power in nine different contexts.

Independent Variables

Environmental Conditions. The operationalization of the environment of a political system has received little consideration in studies of local policy variation. Large numbers of indicators of environmental conditions are often fired at policy variables. A problem with this approach is that on grounds of probability alone some environmental variables are likely to be 'direct hits' in the sense of attaining statistical significance.[30] Two criteria are used here to select environmental conditions of potential relevance to staffing policies. The first criterion is that the conditions should reflect the extent to which the local population are unable to pay for goods and services in the private market. The second criterion is explicitly inductive. The conditions selected reflect the type of variables found to be related to local staffing policies in a previous empirical analysis.[31]

On this basis it is hypothesized that the following conditions are positively related to the change in staffing: the change in total population, the percentage of the population in 'dependant' age groups (children and pensioners), the percentage of population in the low social classes (semi-skilled and unskilled), the male unemployment rate and the percentage of households in poor housing conditions.[32] The specific indicators used are listed in Table 1.

[30] See J. L. Payne, 'Fishing expedition probability; the statistics of post-hoc hypothesising', *Polity*, 7 (1974), 130–8.

[31] See G. A. Boyne, 'Socio-economic conditions, central policies and local staffing levels', *Public Administration*, 64 (1986), 69–82.

[32] Ideally all of these indicators would measure the annual change in the relevant conditions. This would provide firmer grounds for causal inferences than the relationship between condition levels and policy change. However, data of the quality and comprehensiveness of the census is available only for total population. The other four variables can therefore only be specified as levels.

Inputs. The concept of an input to the local political system is operationalized as the level of financial support from central government. This is measured as the annual percentage change in the level of grant in the three relevant financial years. In conjunction with ministerial exhortation the reduction of grant has been the indirect method used by central government to press local authorities to cut staff.[33] The change in grant is measured in the same year as the change in staff because it represents a revenue source available to fund expenditure on staff within that year. It is hypothesized that grant changes will be positively related to staff changes, those authorities suffering the biggest cuts in grant also making the biggest cuts in staff.

Party Politics. The political composition of the local council is operationalized in two ways: as the percentage of Labour seats and as the percentage of Conservative seats. It is useful to include both measures because they are not simply mirror images of each other, especially in the English non-metropolitan districts and the Welsh districts.[34] The political composition variables are measured in the same year as the staff changes. It seems unlikely that there is a substantial delay in the implementation of staffing decisions. Therefore it is preferable to measure political composition as close as possible to the Manpower Watch data points rather than measuring political composition in the previous year.

On the basis of the parties' traditional disposition towards the size of the state a positive effect for Labour seats and a negative effect for Conservative seats is hypothesized. There is no basis on which to predict whether local Labour resistance to or local Conservative cooperation with a Conservative central government policy will have the greater impact. This will be examined in the empirical analysis.

Bureaucratic Power. The concept of bureaucratic power is operationalized through a measure of the 'initial staffing level' in each authority prior to the changes in staff under consideration. The derivation of this measure is explained below. A high initial staffing level is interpreted as reflecting high bureaucratic power and vice versa. The measure should be a good proxy for bureaucratic power to the extent that bureaucrats have a preference for labour inputs and have the capacity to translate this preference into policy. In other words, the initial staffing level must reflect bureaucratic power if the staff maximization hypothesis is valid.

As noted in Part I, the ratio of staff to population is a poor measure of bureaucratic power because it contains the effect of variables other than the attempt by bureaucrats to maximize staff. To obtain a better indicator of bureaucratic power it is necessary to purge the staffing level measure of these other influences. Following the logic of the model of staff changes outlined above, the potential influences on the initial staffing level other than bureaucratic power are: conditions which reflect the dependence of local population

[33] T. Travers, 'Pay versus jobs: the choices facing local authorities', *Public Money* (December 1982), 19–24.

[34] See G. A. Boyne, 'Changes in Labour power on district and county councils: regional patterns and policy consequences', *Local Government Studies*, 12 (July/August 1985), 91–106.

on public sector service provision, the support for the local political system from central government and the party political composition of the council. By regressing the raw number of staff on these variables a measure of the level of staffing can be derived which is cleansed of their influence. This measure is the residual from the regression analysis. A positive residual is a measure of the initial staffing level which indicates that an authority employs more staff than predicted on the basis of environmental conditions, central grant and party politics. Similarly, a negative residual indicates less staff than expected. This measure of initial staffing levels can then be interpreted as an indirect measure of bureaucratic power.

The variables used in the regressions to derive the measure of bureaucratic power are shown in Table 3. The dependent variable is the level of staff in 1980/81, prior to the central government pressure on local authorities to reduce staff through the 'resource squeeze' which accompanied the introduction of block grant in 1981/82. The level of staff is averaged across the four Manpower Watch data points for the same reason as this procedure was followed above when measuring staffing change. The specification of, and hypotheses for, the environmental variables are identical to those in Table 1 with the exception that population change is replaced by population level. Similarly, the change in grant is replaced by level of grant. Finally, the party politics variables are measured as the average level of Labour and Conservative seats between 1974 and 1980. Because the staff level in 1980 has been built up over a number of years (and only since the 1974 reorganization in all the authorities except the London boroughs) the seven-year averages should be better indicators than the party political composition in 1980 alone.

The independent variables are unlikely to purge completely the measure of initial staffing levels of all substantive influences other than bureaucratic power. In addition, measurement error and stochastic error will be present in the residual. However, the reliability of the measure produced by the regression

TABLE 3. Variables and Hypotheses for Bureaucratic Power Regressions.

Concept	Operationalization	Label	Source	Expected sign
Staffing policy	Number of Staff, 1980/81		1	
Policy-makers	(a) Mean % Labour Seats, 1974–80	LABAV	6	+
	(b) Mean % Conservative Seats, 1974–80	CONAV	6	−
Inputs	Level of Central Grant, 1980/81 (£000s)	GRANT	4	+
Environmental conditions	(a) Population, 1980	POP	2	+
	(b)–(e) As Table 1	DEPS, LOCLAS NOWC, UN	2	+

Sources: As Table 1

TABLE 4. Regression Results for Derivation of Measure of Bureaucratic Power.

	Outer London boroughs and metropolitan districts (n = 54)	English non-metropolitan districts (n = 287)	Welsh districts (n = 37)
R^2	0.94	0.85	0.97
$\bar{R}^2$	0.93	0.84	0.96
F	87.9	191.3	100.8
LABAV	63.8*	3.1**	−1.6
	(2.2)	(2.8)	(1.1)
CONAV	42.3	−1.2	−0.6
	(1.5)	(1.4)	(−0.3)
GRANT	0.11***	−0.03	−0.009
	(5.0)	(0.04)	(1.2)
POP	10.1*	13.5***	15.2***
	(2.0)	(19.1)	(12.6)
LOCLAS	−305.1*	3.5	25.1
	(2.4)	(0.5)	(1.9)
DEPS	−173.1	20.6**	31.2*
	(0.9)	(3.0)	(2.1)
UN	258.2**	34.9***	8.9
	(3.1)	(5.4)	(0.8)
NOWC	263.0	25.5	25.0*
	(1.7)	(1.9)	(2.7)
Constant	1,763.7	−1,811.9	−2,157.1**
	(0.2)	(5.9)	(3.1)

Note: *t* statistics in brackets in this and subsequent tables. Significance levels in this and subsequent tables are indicated as follows: * = 0.05 or better; ** = 0.01 or better; *** = 0.001 or better

analysis does not require that *only* bureaucratic power is present in the residual. Rather it is necessary that bureaucratic power *dominates* the residual.[35] The validity of the assumption that bureaucratic power dominates the residual requires that the model from which the residual is derived has high explanatory power. There are no established criteria, but if the residual is obtained from a model with only moderate or low explanatory power the assumption that it is dominated by a measure of a single concept seems implausible.

In this context the results of the regression analyses used to derive the indirect measure of bureaucratic power are encouraging. The key feature of the results shown in Table 4 is the strong and highly significant explanatory power of the model in all three types of authority. The estimated coefficients of the individual variables are not of direct concern here and should be treated with

[35] See J. Kugler, 'Use of residuals: an option to measure concepts indirectly', *Political Methodology*, 9 (1983), 103–20.

TABLE 5. Correlation between BURPOW and SIZE.

Outer London boroughs and metropolitan districts	0.46*** (n = 54)
English non-metropolitan districts	0.49*** (n = 286)
Welsh districts	0.53*** (n = 37)

caution because of substantial multicollinearity amnongst some of the independent variables (see Appendix).

The high level of statistical explanation provided by the regression models permits considerable confidence in the use of the residuals as an indirect measure of bureaucratic power. On the basis of the staff maximization hypothesis a positive relationship between this measure and staffing change is hypothesized: strong bureaux are expected to cut least or increase their staff. For purposes of comparison the analysis below also presents results for staff per 1,000 population as a measure of bureau power. The correlations in Table 5 show that the two measures are distinct—the authorities with high initial staffing levels net of influences other than bureaucratic power are not necessarily those with the highest ratio of staff to local population. If BURPOW is a better measure than SIZE then the former should have a stronger positive relationship than the latter with staff changes.

III. Results

The statistical results for the model of variations in staffing policies are presented in Tables 6 to 10. The tables show the combined explanatory power of the independent variables and estimated OLS regression coefficients for individual variables. The relevance of some coefficients to the hypotheses is difficult to interpret because of high multicollinearity[36] amongst some independent variables (see Appendix). The coefficients of such variables may be insignificant not because of substantive unimportance but because multicollinearity has inflated the standard errors of the estimates. Therefore, to provide some additional insight on the validity of the hypotheses, various forms of the model have been tested to compare $\bar{R}^2$s, SERs and Fs. Models 1 and 2 contain both CON and LAB and include BURPOW and SIZE in turn. Models 3 and 4 omit both bureaucratic power variables and include CON and LAB in turn. Models 5–8 show separate results first for BURPOW and then for SIZE with each of the party political variables.

The Explanatory Power of the Model

For four of the nine contexts in which the model was tested neither the

[36] The criterion of 'high' multicollinearity used here is $R_i^2 > R^2$. See J. Johnson, *Econometric Methods* (New York, McGraw Hill, 1972), pp. 163–4.

TABLE 6. Regression Results for Outer London Boroughs and Metropolitan Districts: CHSTAF82.

	1 (n = 50)	2 (n = 50)	3 (n = 52)	4 (n = 52)	5 (n = 50)	6 (n = 50)	7 (n = 50)	8 (n = 50)
R^2	0.45	0.42	0.40	0.34	0.44	0.39	0.42	0.37
$\bar{R}^2$	0.32	0.29	0.30	0.24	0.34	0.27	0.31	0.25
SER	1.42	1.44	1.41	1.48	1.40	1.46	1.43	1.49
F	3.6	3.3	4.1	3.2	4.1	3.3	3.8	3.0
SQZ	0.12*	0.15**	0.15**	0.13*	0.12*	0.10	0.15**	0.12*
	(2.4)	(3.1)	(3.2)	(2.6)	(2.4)	(1.9)	(3.1)	(2.6)
POPCH	0.02	−0.006	0.06	−0.02	0.10	−0.07	0.01	−0.08
	(0.05)	(0.01)	(0.2)	(0.06)	(0.03)	(0.2)	(0.04)	(0.2)
LOCLAS	0.12	0.06	0.05	0.05	0.11	0.12	0.07	0.06
	(0.9)	(0.5)	(0.4)	(0.3)	(0.9)	(0.9)	(0.5)	(0.4)
DEPS	−0.05	−0.04	0.02	0.05	−0.04	−0.01	−0.04	−0.005
	(0.3)	(0.2)	(0.1)	(0.3)	(0.2)	(0.08)	(0.2)	(0.02)
UN	−0.09	−0.04	−0.07	−0.04	−0.09	−0.07	−0.05	−0.02
	(1.1)	(0.4)	(0.9)	(0.5)	(1.0)	(0.7)	(0.5)	(0.2)
NOWC	−0.40*	−0.39*	−0.35*	−0.31*	−0.40*	−0.36*	−0.39*	−0.35*
	(2.5)	(2.3)	(2.4)	(2.0)	(2.6)	(2.2)	(2.4)	(2.0)
CON	−0.04	−0.04	−0.05**		−0.04**		−0.05**	
	(1.9)	(1.9)	(3.3)		(2.7)		(3.2)	
LAB	−0.006	−0.003		0.04*		0.03		0.04*
	(0.3)	(0.1)		(2.5)		(1.9)		(2.5)
BURPOW	−0.49				−0.46	−0.48		
	(1.4)				(1.4)	(1.3)		
SIZE		−0.03					−0.03	−0.04
		(0.6)					(0.6)	(0.6)
Constant	3.0	3.5	1.1	−4.3	2.4	−2.3	3.7	−1.7
	(0.4)	(0.4)	(0.2)	(0.6)	(0.3)	(0.3)	(0.5)	(0.2)

TABLE 7. Regression Results for Outer London Boroughs and Metropolitan Districts: CHSTAF83.

	1 (n = 51)	2 (n = 51)	3 (n = 53)	4 (n = 53)	5 (n = 51)	6 (n = 51)	7 (n = 51)	8 (n = 51)
R^2	0.31	0.28	0.25	0.26	0.30	0.31	0.27	0.28
$\bar{R}^2$	0.16	0.13	0.13	0.14	0.17	0.18	0.13	0.15
SER	1.31	1.34	1.34	1.33	1.30	1.30	1.33	1.32
F	2.0	1.8	2.1	2.2	2.3	2.3	2.0	2.1
SQZ	−0.02	−0.004	−0.01	−0.009	−0.02	−0.02	−0.005	−0.005
	(0.4)	(0.1)	(0.3)	(0.3)	(0.5)	(0.4)	(0.1)	(0.1)
POPCH	−0.05	−0.07	0.04	0.004	−0.01	−0.05	−0.01	−0.06
	(0.1)	(0.2)	(0.1)	(0.01)	(0.03)	(0.1)	(0.03)	(0.1)
LOCLAS	0.07	0.05	0.12	0.09	0.09	0.07	0.09	0.05
	(0.6)	(0.5)	(1.2)	(0.8)	(0.9)	(0.6)	(0.8)	(0.5)
DEPS	0.08	0.06	0.01	0.02	0.08	0.08	0.04	0.05
	(0.4)	(0.3)	(0.1)	(0.1)	(0.4)	(0.5)	(0.2)	(0.3)
UN	−0.04	−0.04	−0.04	−0.03	−0.04	−0.04	−0.05	−0.04
	(0.6)	(0.4)	(0.5)	(0.5)	(0.6)	(0.6)	(0.5)	(0.4)
NOWC	0.20	0.21	0.13	0.13	0.21	0.20	0.21	0.21
	(1.5)	(1.4)	(1.0)	(1.0)	(1.5)	(1.5)	(1.4)	(1.4)
CON	−0.0009	−0.002	−0.01		−0.01		−0.01	
	(0.05)	(0.1)	(0.9)		(0.9)		(0.9)	
LAB	0.01	0.02		0.01		0.01		0.02
	(0.6)	(0.8)		(1.2)		(1.1)		(1.2)
BURPOW	−0.26				−0.28	−0.26		
	(1.2)				(1.4)	(1.2)		
SIZE		−0.005					−0.0002	−0.006
		(0.1)					(0.004)	(0.1)
Constant	−5.3	−4.3	−2.1	−3.2	−4.4	−5.4	−2.8	−4.0
	(0.7)	(0.6)	(0.3)	(0.4)	(0.6)	(0.8)	(0.4)	(0.6)

TABLE 8. Regression Results for English Non-Metropolitan Districts: CHSTAF81.

	1 (n = 279)	2 (n = 279)	3 (n = 279)	4 (n = 279)	5 (n = 279)	6 (n = 279)	7 (n = 279)	8 (n = 279)
R^2	0.11	0.14	0.10	0.10	0.11	0.11	0.13	0.14
$\bar{R}^2$	0.08	0.11	0.07	0.07	0.08	0.08	0.11	0.11
SER	2.71	2.67	2.72	2.72	2.71	2.71	2.67	2.66
F	3.6	4.8	4.2	4.1	4.1	4.0	5.2	5.4
SQZ	0.02*	0.03**	0.01	0.01	0.02*	0.02*	0.03**	0.03**
	(2.2)	(2.9)	(1.7)	(1.6)	(2.1)	(2.0)	(2.9)	(2.9)
POPCH	−0.08	−0.07	−0.09	−0.09	−0.07	−0.08	−0.08	−0.07
	(1.0)	(1.0)	(1.2)	(1.3)	(1.0)	(1.1)	(1.1)	(1.0)
LOCLAS	0.005	0.01	0.001	0.02	−0.001	0.02	0.03	0.02
	(0.1)	(0.2)	(0.001)	(0.2)	(0.01)	(0.3)	(0.3)	(0.2)
DEPS	−0.17*	−0.12	−0.16*	−0.16*	−0.16**	−0.16*	−0.16**	−0.12
	(2.5)	(1.8)	(2.5)	(2.3)	(2.6)	(2.4)	(2.6)	(1.7)
UN	−0.15*	−0.04	−0.16*	−0.15*	−0.16*	−0.15*	−0.03	−0.04
	(2.2)	(0.6)	(2.5)	(2.3)	(2.5)	(2.3)	(0.4)	(0.6)
NOWC	−0.13	−0.10	−0.14	−0.13	−0.14	−0.12	−0.10	−0.10
	(1.0)	(0.8)	(1.1)	(1.0)	(1.1)	(1.0)	(0.8)	(0.8)
CON	−0.008	−0.003	−0.005		−0.007		−0.005	
	(1.0)	(0.4)	(0.7)		(0.9)		(0.6)	
LAB	−0.004	0.01		−0.001		−0.002		0.01
	(0.4)	(1.1)		(0.1)		(0.2)		(1.2)
BURPOW	−0.30				−0.30	−0.27		
	(1.7)				(1.7)	(1.6)		
SIZE		−0.30***					−0.26***	−0.30***
		(3.5)					(3.4)	(3.6)
Constant	7.7*	6.3*	6.8*	6.3*	7.2*	6.5*	7.6*	5.9
	(2.5)	(2.1)	(2.4)	(2.2)	(2.5)	(2.3)	(2.7)	(2.1)

TABLE 9. Regression Results for English Non-Metropolitan Districts: CHSTAF83.

	1 (n = 267)	2 (n = 267)	3 (n = 269)	4 (n = 269)	5 (n = 267)	6 (n = 267)	7 (n = 267)	8 (n = 267)
R^2	0.13	0.14	0.12	0.09	0.12	0.09	0.12	0.09
$\bar{R}^2$	0.10	0.11	0.10	0.07	0.10	0.06	0.10	0.07
SER	2.39	2.39	2.40	2.44	2.41	2.45	2.41	2.44
F	4.4	4.5	5.3	3.8	4.5	3.1	4.5	3.4
SQZ	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02
	(1.5)	(1.5)	(1.4)	(1.3)	(1.4)	(1.4)	(1.5)	(1.4)
POPCH	0.33	0.32	0.32	0.27	0.31	0.28	0.32	0.25
	(1.9)	(1.9)	(1.9)	(1.6)	(1.8)	(1.6)	(1.9)	(1.5)
LOCLAS	0.07	0.07	0.10	0.14*	0.10	0.13	0.10	0.13
	(1.0)	(1.0)	(1.5)	(2.0)	(1.4)	(1.9)	(1.3)	(1.8)
DEPS	0.03	0.04	−0.006	0.06	−0.007	0.06	−0.008	0.08
	(0.6)	(0.7)	(0.1)	(1.0)	(0.1)	(1.0)	(0.1)	(1.2)
UN	−0.06	−0.04	−0.02	−0.07	−0.02	−0.07	−0.02	−0.003
	(1.0)	(0.6)	(0.3)	(1.2)	(0.3)	(1.1)	(0.3)	(0.5)
NOWC	−0.15	−0.15	−0.13	−0.11	−0.13	−0.11	−0.13	−0.11
	(1.3)	(1.3)	(1.2)	(1.0)	(1.2)	(1.0)	(1.2)	(1.0)
CON	−0.03***	−0.03***	−0.03***		−0.03***		−0.03***	
	(3.7)	(3.5)	(4.1)		(4.1)		(4.1)	
LAB	0.02	0.02*		0.02*		0.02*		0.03**
	(1.8)	(2.0)		(2.6)		(2.6)		(2.9)
BURPOW	−0.02				−0.05	0.02		
	(0.1)				(0.3)	(0.1)		
SIZE		−0.05					0.004	−0.09
		(0.7)					(0.1)	(1.3)
Constant	−0.69	1.0	0.61	4.2	0.76	−4.1	0.8	−4.4
	(0.3)	(0.4)	(0.2)	(1.6)	(0.3)	(1.5)	(0.3)	(1.7)

TABLE 10. Regression Results for Welsh Districts: CHSTAF83.

	1 (n = 32)	2 (n = 32)	3 (n = 32)	4 (n = 32)	5 (n = 32)	6 (n = 32)	7 (n = 32)	8 (n = 32)
R^2	0.75	0.76	0.71	0.30	0.74	0.31	0.74	0.42
$\bar{R}^2$	0.65	0.66	0.62	0.10	0.65	0.07	0.65	0.22
SER	1.42	1.40	1.49	2.29	1.43	2.32	1.43	2.13
F	7.5	7.8	8.3	1.5	8.2	1.3	8.2	2.1
SQZ	−0.10**	−0.10**	−0.08*	−0.07	−0.08*	−0.06	−0.08*	−0.08
	(2.9)	(3.1)	(2.5)	(1.3)	(2.7)	(1.2)	(2.7)	(1.5)
POPCH	−0.79*	−0.71*	−0.87*	−0.40	−0.87*	−0.43	−0.79*	−0.35
	(2.3)	(2.1)	(2.5)	(0.7)	(2.6)	(0.8)	(2.3)	(0.7)
LOCLAS	−0.12	−0.06	−0.17	0.36	−0.19	0.33	−0.13	0.33
	(0.7)	(0.4)	(1.0)	(1.4)	(1.2)	(1.3)	(0.8)	(1.4)
DEPS	−0.66**	−0.62**	−0.55**	−0.16	−0.55**	−0.12	−0.48**	−0.06
	(3.6)	(3.3)	(3.4)	(0.6)	(3.6)	(0.5)	(3.0)	(0.3)
UN	−0.23	−0.14	−0.28*	−0.37	−0.29*	−0.40	−0.19	−0.22
	(1.8)	(1.1)	(2.3)	(1.9)	(2.5)	(1.9)	(1.5)	(1.1)
NOWC	−0.14	−0.09	−0.17	0.17	−0.17	0.16	−0.12	0.20
	(1.4)	(0.9)	(1.8)	(1.2)	(1.8)	(1.1)	(1.2)	(1.6)
CON	−0.11***	−0.10***	−0.11***		−0.11***		−0.10***	
	(6.3)	(5.6)	(5.9)		(6.3)		(5.4)	
LAB	−0.02	−0.03		−0.03		−0.02		−0.16
	(1.1)	(1.4)		(0.9)		(0.6)		(0.6)
BURPOW	−0.36				−0.50	−0.29		
	(1.1)				(1.8)	(0.6)		
SIZE		−0.20					−0.25	−0.45*
		(1.4)					(1.7)	(2.2)
Constant	35.6***	33.7***	31.8***	6.5	32.3***	5.4	29.2**	4.6
	(4.2)	(3.9)	(3.9)	(0.6)	(4.1)	(0.5)	(3.6)	(0.4)

combined explanatory power of the independent variables nor any of their individual coefficients were significant.[37] In these contexts, if there are any strong systematic influences on staffing policies then they are neither represented by, *nor even approximated* by, the variables contained in the model. Results for the other five contexts are shown in Tables 6 to 10. The $\bar{R}^2$s for the two 'full' versions of the model (1 and 2) range from 0.08 to 0.66. While these $\bar{R}^2$s are all significant at the 0.05 level or better they are generally low. With the exception of the results shown in Table 10 the model leaves most of the variation in staffing policies unexplained. The following discussion of the effect on CHSTAF of individual independent variables concentrates on the five contexts where the model has some explanatory power. However, the complete failure of the model in four contexts must be borne in mind throughout.

Bureaucratic Power

Neither the results for BURPOW nor SIZE are consistent with the staff maximization hypothesis. Any marginal effect for either measure of bureaucratic power is the opposite of that predicted.

In the four contexts where the combined explanatory power of the independent variables was not significant it may be concluded tentatively that all the hypotheses for environmental conditions, grant and party politics are refuted. The degree of multicollinearity amongst the independent variables means that while this conclusion is highly plausible it can be only tentative. However, such reservations are unnecessary in the interpretation of the insignificance of BURPOW because it is largely independent of the other variables. Therefore in these four contexts the statistical insignificance of BURPOW indicates substantive unimportance. This pattern is replicated in Tables 6 to 10. The estimated coefficients for BURPOW and the low multicollinearity with other variables indicates that bureaucratic power is not related to staffing policies.

There is some evidence of an effect of BURPOW on CHSTAF in the outer London boroughs and metropolitan districts. This can be seen by comparing the results of model 5 with model 3 and model 6 with model 4 in Tables 6 and 7. The addition of BURPOW to the models containing either LAB or CON increases the $\bar{R}^2$, reduces the SER and increases the F. Thus BURPOW is making a marginal but significant contribution to the explanatory power of the model even though this is not reflected in the conventional 0.05 significance test on the estimated coefficient. It should be emphasized, however, that the sign on the coefficient is negative and therefore this evidence does not support the staff maximization hypothesis. The comparison of $\bar{R}^2$s, SERs and Fs indicates no similar effect of BURPOW in the English non-metropolitan districts nor in the Welsh districts (see Tables 8 to 10).

The results allow little scope for a judgement on the subsidiary hypothesis that BURPOW has a stronger positive relationship than SIZE with CHSTAF. The hypothesis is supported to the extent that SIZE is significantly and

[37] Results for these four contexts are not shown. They are available on request from the author.

negatively related to CHSTAF in two contexts. However, SIZE is highly multicollinear with the other variables and therefore the estimated coefficients must be regarded with circumspection. Little light is shed on this issue by comparing the $\bar{R}^2$s, SERs and Fs from models which are identical but for the replacement of BURPOW with SIZE (1 and 2, 5 and 7, 6 and 8). In some contexts the BURPOW models are superior (for example, Table 6), in some the SIZE models are superior (for example, Table 7) and in others the results are identical (for example, Table 10, models 5 and 7).

There is, then, no evidence in these results to support the staff maximization hypothesis. The failure in nine different contexts is a comprehensive rejection of its validity. Of course, there are rival interpretations of the statistical evidence. The most obvious is that BURPOW is not a measure of the initial staffing level which is sufficiently cleansed of influences other than bureaucratic power. However, given the limited theoretical and empirical knowledge it is difficult to identify relevant variables which have been omitted from the regressions in Table 4. A second rival interpretation is that the absence of an effect of BURPOW on CHSTAF at the aggregate authority level may be masking effects at the departmental or sub-departmental level.[38] However, pending empirical evidence on such interpretations the conclusion must be that the staff maximization hypothesis is refuted.

Party Politics

The hypothesized relationships between the party political variables and CHSTAF receive some support from the statistical results. CON is significantly and negatively related to CHSTAF in Tables 6, 9 and 10. LAB is significantly and positively related to CHSTAF in Tables 6 and 9.

It is difficult to evaluate whether CON or LAB has the most important effect because of their multicollinearity with other variables, particularly in the case of LAB (see Appendix). Some evidence on whether CON or LAB has the greater effect on staffing policies can be obtained by comparing the results for models 3 and 4, models 5 and 6, and models 7 and 8. In Tables 6, 9 and 10 the CON models yield higher $\bar{R}^2$s, lower SERs and higher Fs. This is particularly pronounced in the results for the Welsh districts in Table 10 where substitution of CON by LAB causes the $\bar{R}^2$ and F to plummet and the SER to rise. In Table 8 the explanatory power of the CON and LAB models is virtually identical. Only in Table 7 is the explanation provided by the LAB models slightly superior.

The stronger apparent effect of CON may to some extent simply reflect the fact that it is less multicollinear than LAB with other independent variables. However, the degree of difference in the results for the CON and LAB models in Table 10 suggests that this is not the entire explanation. On balance, then, the results indicate that local Conservative cooperation has a stronger effect than local Labour recalcitrance on the implementation of the Conservative central government's policy on local government employment.

[38] For a discussion of this 'disaggregation hypothesis' see G. A. Boyne, 'Output disaggregation and the quest for the impact of local politics', *Political Studies*, 32 (1984), 451–58. On the possible importance of disaggregation for the analysis of staffing policies, see Storey, 'The economics of bureaux'.

Grant and Environmental Conditions

The hypothesized relationship between grant changes and staff changes is supported in only two of the nine contexts. SQZ is significantly and positively related to CHSTAF in Tables 6 and 8. In Table 10, SQZ is significantly but negatively related to CHSTAF. Ironically this last result is the most statistically reliable because SQZ is not highly multicollinear in the context of the R^2 in Table 10.

None of the hypotheses for the environmental variables is consistently supported in Tables 6 to 10. However, their estimated coefficients must be treated with extreme caution. POPCH is the only one of the five environmental variables which is not severely multicollinear with the other independent variables. It is significant only in Table 10 but has the opposite sign to that predicted in this and in most models in Tables 6 to 9. The signs and significance of the other environmental variables fluctuate across the contexts in which the model was tested. Within the constraints on interpretation imposed by the severe multicollinearity all that can be said with any certainty is that the predominantly low $\bar{R}^2$s indicate that LOCLAS, DEPS, UN and NOWC as a group are not strongly related to CHSTAF. This conclusion is also justified where the $\bar{R}^2$ is high, as can be seen by comparing the results for the various forms of the model in Table 10.

Summary and implications

The results indicate that the model does not consistently represent the influences on local staffing policies. The explanatory power of the model is generally low and only the party political variables have the effect hypothesized when their estimated coefficients are significant. The implication of these results for the staff maximization hypothesis are discussed in the conclusion. Several implications of broader relevance to the explanation of variations in local staffing policies are noted here.

First, the difficulty of explaining variations in staff changes is in stark contrast to the almost trivial ease with which variations in staff levels were statistically accounted for in Table 4. This pattern is similar to the differing capacity of studies of local policy variation to account for expenditure levels and expenditure change.[39] However, while the explanation of policy change is more difficult it provides a more solid foundation for causal inferences.[40] Therefore further attempts to explain variations in local staffing policies should specify the dependent variable as change and not level of staff.

Secondly, the importance of multiple tests of models is emphasized by the variable 'fit' of the model of staffing policies.[41] The inconsistent performance of the model across contexts and time illustrates the hazards of generalizing from a single test.

Thirdly, the different results across the contexts in which the model was

[39] See Boyne, 'Theory, methodology and results in political science'.

[40] See R. D. Brumer and K. Leipelt, 'Data analysis, process analysis and system change', *Mid-Western Journal of Political Science*, 16 (1972), 538–69.

[41] On the importance of multiple tests see L. J. Sharpe and K. Newton, *Does Politics Matter?* (Oxford, Clarendon Press, 1984), ch. 1.

tested indicate a need for case study analysis to identify systematic and idiosyncratic influences on staffing policies. Any systematic influences suggested by the case study analysis may contribute to the development of a model which more consistently represents the influences on local staffing policies. On the basis of the statistical results of this analysis it is likely that such a model would include party political variables.

Conclusion

The evidence from the statistical analysis refutes the staff maximization hypothesis. Bureaucratic power has no significant effect on the staffing policies of English and Welsh lower-tier local authorities. It is worth re-emphasizing that the rejection of the staff maximization hypothesis does not undermine the validity of the assumptions that bureaucrats have the desire and the capacity for budget maximization. These assumptions are not logically antecedent to staff maximization and require separate examination. Such broader aspects of rational choice theory are therefore unimpaired by this analysis.

The validity of the staff maximization hypothesis itself may be preserved by grafting on various auxiliary hypotheses which reduce its content. For example, it may be claimed that it is not applicable to the British political system, or that it applies only to bureaucrats in central government or that it applies only to contexts of sustained economic growth or only to political climates favourable to the public sector. The reasons for such restrictions are not apparent in the rational choice literature, but no doubt anyone concerned to save the staff maximization hypothesis can find or invent them. Whatever the context of subsequent tests, further evidence on the validity of the hypothesis is clearly required.

For the present, the notion that bureaucratic power is systematically and positively related to labour inputs to the production of public sector goods and services is without empirical foundation.

Appendix. Correlation Matrices and Multicollinearity Amongst Independent Variables in the Regression Analyses

(R_i^2 for each independent variable regressed on the others in the equation

TABLE A4a

	STAF	GRANT	POP	LOCLAS	DEPS	UN	NOWC	CONAV	LABAV
STAF	1								
GRANT	0.96***	1							
POP	0.92***	0.94***	1						
LOCLAS	0.41*	0.42***	0.26	1					
DEPS	0.30*	0.35**	0.29*	0.32*	1				
UN	0.49***	0.46***	0.30*	0.82***	0.29*	1			
NOWC	0.25	0.23	0.11	0.59***	0.34*	0.43***	1		
CONAV	−0.21	−0.21	−0.04	−0.73***	−0.03	−0.59***	−0.41***	1	
LABAV	0.20	0.17	0.03	0.72***	−0.01	0.52***	0.39*	−0.92	1
R_i^2		0.93	0.92	0.85	0.29	0.73	0.40	0.87	0.88

TABLE A4b

	STAF	GRANT	POP	LOCLAS	DEPS	UN	NOWC	CONAV	LABAV
STAF	1								
GRANT	0.74***	1							
POP	0.87***	0.75***	1						
LOCLAS	0.35***	0.33***	0.15	1					
DEPS	−0.00	0.05	−0.10	−0.11	1				
UN	0.46***	0.37***	0.22***	0.67***	0.12*	1			
NOWC	0.21***	0.37***	0.07	0.47***	0.04	0.31***	1		
CONAV	0.09	−0.06	0.26***	−0.36***	−0.06	−0.23***	−0.30***	1	
LABAV	0.45***	0.35***	0.31***	0.58***	−0.33***	0.53***	0.25***	−0.18**	1
R_i^2		0.71	0.70	0.61	0.28	0.56	0.34	0.31	0.51

TABLE A4c

	STAF	GRANT	POP	LOCLAS	DEPS	UN	NOWC	CONAV	LABAV
STAF	1								
GRANT	0.83***	1							
POP	0.97***	0.85***	1						
LOCLAS	0.20	0.20	0.10	1					
DEPS	−0.40*	−0.44**	−0.46**	−0.45*	1				
UN	0.42*	0.39*	0.32	0.73***	−0.30	1			
NOWC	−0.02	0.18	−0.12	0.23	−0.17	0.27	1		
CONAV	0.46**	0.32	0.55***	−0.29	−0.17	−0.11	−0.42	1	
LABAV	0.40*	0.53***	0.39*	0.60***	−0.62***	0.64***	0.41	−0.02	1
R_i^2		0.82	0.85	0.70	0.56	0.69	0.46	0.53	0.68

TABLE A6

	CHSTAF	SQZ	POPCH	LOCLAS	DEPS	UN	NOWC	CON	LAB	BURPOW	SIZE
CHSTAF	1										
SQZ	0.34*	1									
POPCH	0.06	0.03	1								
LOCLAS	0.36*	0.24	−0.10	1							
DEPS	0.07	0.08	0.03	0.31*	1						
UN	0.23	0.03	−0.26	0.83***	0.27	1					
NOWC	0.05	0.28*	−0.18	0.61***	0.34*	0.42**	1				
CON	−0.41**	0.03	0.14	−0.78***	−0.29*	−0.69***	−0.52***	1			
LAB	0.42**	0.08	−0.06	0.81***	0.26	0.65***	0.52***	−0.92***	1		
BURPOW	−0.39**	−0.31*	−0.08	−0.22	−0.18	−0.20	−0.09	0.24	−0.31	1	
SIZE	0.10	−0.00	−0.42*	0.60***	0.10	0.71***	0.50***	−0.61***	0.59***	0.46***	1
R_i^2		0.38	0.19	0.88	0.17	0.79	0.49	0.87	0.88	0.26	0.66

TABLE A7

	CHSTAF	SQZ	POPCH	LOCLAS	DEPS	UN	NOWC	CON	LAB	BURPOW	SIZE
CHSTAF	1										
SQZ	0.24	1									
POPCH	−0.08	0.20	1								
LOCLAS	0.44***	0.49***	−0.12	1							
DEPS	0.22	0.52***	0.05	0.35*	1						
UN	0.29*	0.46***	−0.30*	0.82***	0.29*	1					
NOWC	0.45***	0.37**	−0.22	0.59***	0.33*	0.43**	1				
CON	−0.42**	−0.48**	0.15	−0.76***	−0.33*	−0.66***	−0.49***	1			
LAB	0.46***	0.44***	−0.08	0.82**	0.30*	0.66***	0.50***	−0.93***	1		
BURPOW	−0.17	−0.26	−0.12	0.01	0.001	0.02	−0.01	0.02	−0.06	1	
SIZE	0.28*	0.03	−0.43***	0.58***	0.17	0.69***	0.45***	−0.57***	0.58***	0.46***	1
R_i^2		0.56	0.37	0.85	0.31	0.76	0.45	0.87	0.89	0.14	0.69

TABLE A8

	CHSTAF	SQZ	POPCH	LOCLAS	DEPS	UN	NOWC	CON	LAB	BURPOW	SIZE
CHSTAF	1										
SQZ	0.10	1									
POPCH	−0.05	−0.03	1								
LOCLAS	−0.14*	−0.11	−0.19***	1							
DEPS	−0.18**	0.02	0.02	−0.08	1						
UN	−0.22***	0.05	−0.17**	0.68***	0.14*	1					
NOWC	−0.16**	−0.24***	−0.04	0.50***	0.03	0.36***	1				
CON	0.06	0.22***	0.14*	−0.43***	−0.05	−0.30***	−0.33***	1			
LAB	−0.06	0.08	−0.18**	0.58***	−0.32***	0.55***	0.32***	−0.33***	1		
BURPOW	−0.07	0.22***	0.08	0.02	−0.02	0.02	−0.00	−0.09	0.01	1	
SIZE	−0.25***	0.30***	−0.10	0.50***	0.08	0.69***	0.27***	−0.17**	0.60***	0.49***	1
R_i^2		0.21	0.06	0.62	0.28	0.58	0.31	0.28	0.53	0.09	0.62

TABLE A9

	CHSTAF	SQZ	POPCH	LOCLAS	DEPS	UN	NOWC	CON	LAB	BURPOW	SIZE
CHSTAF	1										
SQZ	0.13*	1									
POPCH	0.08	−0.04	1								
LOCLAS	0.22***	0.26***	−0.07	1							
DEPS	0.01	0.23***	0.11	−0.09	1						
UN	0.14*	0.25***	−0.15*	0.69***	0.11	1					
NOWC	0.08	0.23***	−0.12*	0.49***	0.03	0.31***	1				
CON	−0.30***	−0.12*	0.13*	−0.48***	0.00	−0.36***	−0.33***	1			
LAB	0.22***	0.10	−0.17**	0.62***	−0.28***	0.59***	0.35***	−0.43***	1		
BURPOW	−0.02	0.03	−0.17**	0.01	−0.00	−0.00	−0.01	−0.06	−0.05	1	
SIZE	0.08	0.18**	−0.18**	0.49***	0.09	0.67***	0.25***	−0.21***	0.59***	0.49***	1
R_i^2		0.15	0.10	0.64	0.27	0.59	0.28	0.29	0.55	0.04	0.55

TABLE A10

	CHSTAF	SQZ	POPCH	LOCLAS	DEPS	UN	NOWC	CON	LAB	BURPOW	SIZE
CHSTAF	1										
SQZ	−0.05	1									
POPCH	−0.29	−0.01	1								
LOCLAS	0.02	−0.28	−0.15	1							
DEPS	0.01	0.05	−0.28	−0.38*	1						
UN	−0.29	−0.37*	0.08	0.71***	−0.26	1					
NOWC	0.14	−0.10	−0.11	0.33	−0.21	0.30	1				
CON	−0.59***	−0.05	0.17	−0.29	−0.27	−0.12	−0.44*	1			
LAB	−0.14	−0.43*	0.17	0.71***	−0.61***	0.71***	0.44*	−0.08	1		
BURPOW	−0.12	−0.01	−0.01	−0.12	0.06	−0.13	−0.01	−0.02	0.09	1	
SIZE	−0.42*	−0.36*	0.07	0.46**	−0.12	0.64***	0.32	0.01	0.55***	0.53***	1
R_i^2		0.31	0.30	0.73	0.64	0.68	0.44	0.48	0.84	0.19	0.52

Note: The measures of multicollinearity are taken from Model 1 in Tables 6 to 10 with the exception of the measure for SIZE which is taken from Model 2

CHAPTER V

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Output Disaggregation and the Quest for the Impact of Local Politics

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In contrast to case studies of British local authorities,[1] most cross sectional statistical analyses have not found local politics to be an important influence on policy outputs.[2] The results of output studies indicate that the importance of specific independent variables differs between policy areas. However, in general, environmental variables (such as population size, demography, social class and rateable value) seem to possess greater explanatory power than political variables (such as party control, competition and turnout). While the case study and statistical analyses should properly be viewed as complementary rather than competing,[3] the statistical results for political variables have been viewed with some disquiet. The response of British political scientists has not approached the supposed 'near panic' of their American counterparts.[4] Never-

[1] See, for example, J. Dearlove, *The Politics of Policy in Local Government* (Cambridge, Cambridge University Press, 1973); K. Newton, *Second City Politics* (London, Oxford University Press, 1976); P. Saunders, *Urban Politics* (Harmondsworth, Penguin, 1979).

[2] The full list of studies which test models of output variation which include both environmental and political variables is as follows: F. R. Oliver and J. Stanyer, 'Some Aspects of the Financial Behaviour of County Boroughs', *Public Administration*, 47 (1969), 169–84; N. T. Boaden and R. R. Alford, 'Sources of Diversity in English Local Government Decisions', *Public Administration*, 47 (1969), 203–23; J. E. Alt, 'Some Social and Political Correlates of County Borough Expenditures', *British Journal of Political Science*, 1 (1971), 49–62; N. T. Boaden, *Urban Policy Making* (Cambridge, Cambridge University Press, 1971); B. P. Davies, A. Barton, I. McMillan and V. Williamson, *Variations in Services for the Aged* (London, G. Bell & Sons, 1971); B. P. Davies, A. Barton and I. McMillan, *Variations in Children's Services Among British Urban Authorities* (London, G. Bell & Sons, 1972); R. J. Nicholson and N. Topham, 'The Determinants of Investment in Housing by Local Authorities: An Econometric Approach', *Journal of the Royal Statistical Society*, Series A, 134 (1971), 272–303, and 'Investment Decisions and the Size of Local Authorities', *Policy and Politics*, 1 (1972), 23–44, and 'Urban Road Provision in England and Wales, 1962–68', *Policy and Politics*, 4, 3–29; D. E. Ashford, 'Resources, Spending and Party Politics in British Local Government, *Administration and Society*, 7 (1975), 286–311; D. E. Ashford, R. Berne and R. Schramm, 'The Expenditure-Financing Decision in British Local Government', *Policy and Politics*, 5 (1976), 5–24; J. A. Schofield, 'Determinants of Urban Service Expenditures', *Local Government Studies*, 4 (1978), 65–79; J. N. Danziger, *Making Budgets* (Beverly Hills, Sage, 1978); S. Pinch, 'Patterns of Local Authority Housing Allocation in Greater London', *Transactions of the Institute of British Geographers*, 3 (1978), 35–54; L. J. Sharpe, 'Does Politics Matter? An Interim Summary with Findings', in K. Newton (ed.), *Urban Political Economy* (London, Frances Pinter, 1981).

[3] Danziger, *Making Budgets*, ch. 8.

[4] T. R. Dye, *Policy Analysis* (Alabama, University of Alabama Press, 1978).

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theless, there has been a continued concern to 'improve' the results for political variables.[5]

One recurrent criticism of output studies in both the American[6] and British[7] literature is that total expenditure per service head is an inappropriate measure of output. It is considered that total expenditures are not the real issues around which conflict centres. Rather they are 'accounting abstractions' and their use as dependent variables in statistical models obscures the impact of politics. Therefore, it has been suggested that sub-function expenditures are more appropriate measures of outputs. It is argued that output *disaggregation* pitches analysis at the level of concrete issues and thus for any particular policy area political effects will be stronger at the sub-function than at the aggregate level.

Testing the Disaggregation Hypothesis

Given the prevalence of the argument that aggregate outputs mask political effects, it is surprising that the disaggregation hypothesis has not been tested. The analysis below provides a preliminary test by confronting the hypothesis with existing results for sub-function outputs. Results for the relative importance of environmental and political effects on the sub-functions within a policy area are compared to the results for aggregate expenditure within that same area. It is a sad reflection of the condition of British output studies that sub-function results are available for only four services and for only the pre-1974 local government system.

Few of the results of output studies indicate that either the environment or the political system has *no* effect on policies. In principle, the balance of effects may range between the heavy dominance of the environment through approximate equality to the heavy dominance of politics. However, in practice, the statistical evaluation of the relative importance of environmental and political variables is problematic if they are collinear. Where collinearity (or multicollinearity amongst several independent variables) is high it is impossible to weigh the relative effects of the environmental and political variables. The zero-order correlations which are reported[8] in the studies discussed below are

[5] See D. N. King, 'Why Do Local Authority Rate Poundages Differ', *Public Administration*, 51 (1973), 165–73; K. Newton and L. J. Sharpe, 'Local Outputs Research: Some Reflections and Proposals', *Policy and Politics*, 5 (1977), 61–82; J. E. Alt, 'Politics and Expenditure Models', *Policy and Politics*, 5 (1977), 83–92; Sharpe, 'Does Politics Matter? An Interim Summary with Findings'.

[6] See J. Jacob and K. Lipsky, 'Outputs, Structure and Power: An Assessment of Changes in the Study of State and Local Politics', *Journal of Politics*, 30 (1968), 61–82; P. B. Coulter, 'Comparative Community Politics and Public Policy', *Polity*, 3 (1968), 22–43; S. Rakoff and G. Schaeffer, 'Politics, Policy and Political Science: Theoretical Alternatives', *Politics and Society* (1970), 51–77; J. M. Munns, 'The Environment, Politics and Policy Literature: A Critique and Reformulation', *Western Political Quarterly*, 28 (1975), 646–67.

[7] See Newton and Sharpe, 'Local Outputs Research: Some Reflections and Proposals'; Danziger, *Making Budgets*; Sharpe, 'Does Politics Matter? An Interim Summary with Findings'.

[8] See Boaden, *Urban Policy Making*, 126–35 and Davies *et al.*, *Variations in Children's Services Among British Urban Authorities*, 143–57. Neither Boaden and Alford, 'Sources of Diversity in English Local Government Decisions' nor Davies *et al.*, *Variations in Services for the Aged* report the zero order correlations amongst their independent variables. This is doubly unfortunate because this information allows alternative simple causal models to be fitted to the data. See H. B. Asher, *Causal Modelling* (Beverly Hills, Sage, 1976).

generally low enough to suggest[9] that the estimates of the coefficients are reliable. However, for one output this is not the case and the implications for the interpretation of the result are discussed.

Welfare, Local Health and Children's Services

Davies *et al.*[10] use path analysis[11] to identify the influences on sub-functions of the above three services in County Boroughs. They explicate the relationships between environmental variables, political variables and outputs in a hierarchical causal structure. Path analysis diagrams show the relationships between the independent variables and show the indirect and direct impact of these variables on the outputs. The analysis by Davies *et al.* is not explicitly concerned with the relative importance of environmental and political variables. However, by reanalysing the various direct and indirect path coefficients presented in their results it is possible to compute total path coefficients for individual independent variables.[12] The importance of environmental and political variables can then be compared. The computed total path coefficients are shown in Tables 1 and 2. The low R^2 in almost all cases should be noted when interpreting the results.[13]

Welfare Services

Davies *et al.* analyse influences upon 38 Welfare sub-functions. However, the results for only seven of these permit the evaluation of the relative importance of environmental and political variables.[14] Results for the first and second outputs indicate that the single most important variable is political (OFFICS and LABSTS respectively). However, in both of these cases the effect of the political variables is outweighed by the combined effect of the environmental variables. Results for outputs 3–7 indicate that the single most important variable is environmental and that political effects are heavily outweighed by environmental effects.

Results obtained by analyses of *aggregate* Welfare expenditure[15] are similar

[9] The zero-order correlations are not in themselves an adequate test of multicollinearity. This requires that all the other independent variables be regressed on each independent variable in turn. See J. Johnston, *Econometric Methods* (New York, McGraw-Hill, 1972).

[10] Davies *et al.*, *Variations In Services for the Aged*, and *Variations In Children's Services Among British Urban Authorities.*

[11] See H. B. Asher, *Causal Modelling*; O. D. Duncan, *Introduction to Structural Equation Models* (New York, Academic Press, 1975).

[12] The total path coefficient is the sum of the indirect path coefficients and the direct path coefficient. See M. Lewis-Beck and L. B. Mohr, 'Evaluating Effects of Independent Variables', *Political Methodology*, 3 (1976), 27–47.

[13] The R^2 is not shown on the path analysis diagrams. It has been calculated by the formula: $R^2 = 1 - (\text{residual path coefficient})^2$. See Asher, *Causal Modelling*, 31.

[14] Of the remaining 31 outputs, 10 show no political effects and little environmental effect; 10 show such a high residual path coefficient ($= R^2 < 0.15$) that all effects may be considered unimportant; 7 are planned rather than actual outputs; 3 are artificially constructed factors; 1 shows no residual path coefficient and therefore it is impossible to calculate R^2.

[15] See Alt, 'Some Social and Political Correlates of County Borough Expenditures'; Boaden, *Urban Policy Marking*; Danziger, *Making Budgets*; Sharpe, 'Does Politics Matter? An Interim Summary with Findings'.

TABLE 1. Total Path Coefficients (calculated from Davies *et al., Variations in Services for the Aged)*

	LABSTS	OFFICS	TOPOP	PRPROD	FCI	SCI	WW	POPCH	(R^2)
Welfare									
1. Elderly residents in homes per 1,000 population	0.09	0.20	−0.06	—	0.17	0.06	−0.03	—	0.36
2. Number registered blind/partially sighted per 1,000 population	0.52	—	−0.22	—	0.42	0.32	−0.18	—	0.44
3. Net current expenditure on physically handicapped per 1,000 population	0.06	0.11	−0.17	—	−0.18	−0.04	0.02	0.19	0.28
4. Proportion of handicapped in residential homes	0.03	−0.35	0.11	—	−0.40	—	—	—	0.34
5. Net expenditure on temporary accommodation per 1,000 population	0.16	−0.06	0.09	—	−0.45	−0.02	−0.01	—	0.33
6. Numbers of social workers per 1,000 population	0.12	0.13	−0.14	—	0.22	0.33	0.20	0.19	0.33
7. Ratio of numbers of social workers to total welfare expenditure	0.12	0.04	0.98	—	0.05	0.03	—	−0.10	0.80
Health									
1. Home helps per capita	0.20	—	—	−0.18	—	0.12	−0.06	—	0.31
2. Net expenditure per capita on home helps	0.26	—	—	—	—	0.16	−0.08	—	0.23
3. Ratio of income from home help charges to gross expenditure on home helps	−0.13	—	−0.05	—	—	−0.42	−0.04	—	0.23
4. Ratio of home nurse vacancies to home nurse posts	0.20	—	—	0.30	—	0.12	0.32	—	0.19
5. Net expenditure per capita on home nursing	0.20	—	0.07	—	0.28	0.12	0.07	—	0.21

For definition of variables, see end of Table 2.

TABLE 2. Total Path Coefficients (calculated from Davies *et al.*, *Variations in Children's Services*)

	LABSTS	TOPOP	POPYO	EMP	SCI	DISORG	(R^2)
1. Ratio of children in local authority homes to children fostered	−0.12	−0.25	−0.03	−0.09	−0.03	−0.02	0.26
2. Rate of turnover of children in care	0.28	−0.47	0.06	−0.11	0.07	−0.04	0.29

Definition of variables in Tables 1 and 2.

LABSTS = % Labour seats on the council
OFFICS = Autonomy of Welfare Officials
TOPOP = Population Size
PRPROD = Product of a penny rate
FCI = Family Care Index
SCI = Social Conditions Index
WW = Women Working/Males Working
POPCH = Population Change
POPYO = % Population aged under 18 years
EMP = Employment Pattern Factor
DISORG = Social Disorganization Factor

to those for sub-functions 3–7: the effect of political variables is generally weak. Therefore the fact that two of the sub-functions show relatively strong political effects provides some limited support for the disaggregation hypothesis.

Local Health Services

Davies *et al.* analyse influences upon 27 Local Health sub-functions. However, the results for only five of these permit the evaluation of the relative importance of environmental and political variables.[16]

Results for the first two outputs indicate that LABSTS is the single most important variable. For the first output the effect of LABSTS is outweighed by the combined effect of the environmental variables. For the second output LABSTS is not only the single most important variable but also slightly outweighs the combined effect of the two environmental variables. Results for outputs 3–5 indicate that the single most important variable is environmental and that environmental effects outweigh political effects.

Results obtained by analyses of *aggregate* Local Health expenditure are similar to the sub-function results. In one case[17] LABSTS is the most important variable while in the other two cases[18] environmental effects outweigh political effects. Therefore the results for the sub-function outputs provide no support for the disaggregation hypothesis.

Children's Services

Davies *et al.* analyse influences on 8 Children's Services sub-functions. However, the results for only two of these permit the evaluation of the relative importance of environmental and political variables.[19] These two results indicate that environmental effects heavily outweigh political effects. The sub-function results reflect the balance of results for *aggregate* Children's Service expenditure[20] and therefore provide no support for the disaggregation hypothesis.

Education

Education sub-functions have been analysed by Boaden and Alford, Boaden, Danziger and Sharpe.[21] However, the form of results recorded by Danziger and

[16] Of the remaining 22 outputs, 6 show no political effects and little environmental effect; 3 show such a high residual path coefficient (= R^2<0.15) that all effects may be considered unimportant; 4 are 'planned' rather than actual outputs; 1 is a combined figure for 2 separate sub-functions.

[17] Alt, 'Some Social and Political Correlates of County Borough Expenditures'.

[18] Boaden, *Urban Policy Making*; Danziger, *Making Budgets*.

[19] Of the other six, five outputs show no political effect and little environmental effect; for one output the residual path coefficient is so high (R^2=<0.15) that all effects may be considered unimportant.

[20] See Alt, 'Some Social and Political Correlates of County Borough Expenditures'; Boaden, *Urban Policy Making*; Davies *et al.*, *Variations in Children's Services Among British Urban Authorities*; Danziger, *Making Budgets*; Sharpe, 'Does Politics Matter? An Interim Summary with Findings'.

[21] Boaden and Alford, 'Sources of Diversity in English Local Government Decisions'; Boaden,

Sharpe do not permit the evaluation of the relative importance of environmental and political variables.[22]

Boaden and Alford analyse influences upon the submission of plans for comprehensive reorganization by County Boroughs. The cross-tabulation form of their results does not provide for an explicit measure of the relative importance of environmental and political variables. However, their results suggest that the percentage of the population of school age is the most important influence followed by percentage of Labour seats and then social class composition and rate revenue per capita. Thus, environmental effects outweigh political effects.

Boaden analyses influences upon the percentage of 13 year olds in Grammar Schools in County Boroughs. His idiosyncratic use of partial correlation hinders a clear evaluation of the relative importance of the variables. However, the results indicate that social class composition is the most important influence, followed by level of central grant, percentage of the population of school age, and finally percentage of Labour seats which is of least importance.

Comparing these results to those for *aggregate* education expenditure[23] provides no support for the disaggregation hypothesis. However, some caution is necessary when interpreting Boaden's result because there is considerable collinearity between social class composition and percentage of Labour seats ($r = 0.78$). As the collinearity between two independent variables increases, the likelihood that the coefficient of one is overestimated and the coefficient of the other is underestimated becomes greater. However, it is impossible to do more than speculate which of the estimates in this case is inflated and which is depressed.

Conclusion

This preliminary test provides very little support for the disaggregation hypothesis. The results discussed indicate that the relative importance of environmental and political effects is little altered by changing the dependent variable from aggregate expenditure to sub-function outputs. If the question is how to 'capture the full effect of politics' then rather than simply to disaggregate the outputs, the answer must be to develop more sophisticated causal models.[24] At a minimum, it is necessary to build on case study material

Urban Policy Making; Danziger, *Making Budgets*; Sharpe, 'Does Politics Matter? An Interim Summary with Findings'.

[22] Danziger records only simple correlations for primary, secondary, further and special education expenditure; Sharpe records results only for political variables for milk/meals expenditure.

[23] See Alt, 'Some Social and Political Correlates of County Borough Expenditures'; Boaden, *Urban Policy Making*; Danziger, *Making Budgets*; Sharpe, 'Does Politics Matter? An Interim Summary with Findings'.

[24] Two important reformulations of the traditional model are J. Stonecash, 'Politics, Wealth and Public Policy: The significance of Political Systems', *Policy Studies Journal*, 7 (1979), 670–5; and T. Hansen, 'Transforming Needs Into Expenditure Decisions', in K. Newton (ed.), *Urban Political Economy*.

by including variables which measure the effect of local political traditions,[25] pressure group activity,[26] bureaucrats[27] and public opinion.[28]

[25] There is an interesting attempt to do this in Nicholson and Topham, 'The Determinants of Investment in Housing by Local Authorities: An Econometric Approach'.

[26] See B. H. Zisk, 'Local Interest Politics and Municipal Outputs', in H. Hahn (ed.), *People and Politics in Urban Society* (Beverly Hills, Sage, 1972); R. W. Getter and P. W. Schumaker, 'Contextual Bases of Responsiveness to Citizen Preferences and Group Demands', *Policy and Politics*, 6 (1978), 249–78.

[27] See G. Downs and D. Rocke, 'Bureaucracy and Juvenile Corrections', in T. Dye and V. Gray, *The Determinants of Public Policy* (Lexington, Mass., Lexington Books, 1980); on the measurement of the relative strength of bureaucrats and groups see G. A. Boyne, 'Community Models and Expenditure Skew', *Public Administration*, 60 (1982), 481–8.

[28] See W. R. Shaffer and R. E. Weber, *Policy Responsiveness in the American States* (Beverly Hills, Sage, 1974); R. S. Erikson, 'The Relationship Between Public Opinion and State Policy: A New Look at Some Forgotten Data', *American Journal of Political Science*, 20 (1976), 25–36.

CHAPTER VI

Urban Studies (1988), 25, 474–486

Politics, Unemployment and Local Economic Policies

George A. Boyne

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Summary. This paper develops and tests a model of variations in local economic policies. The influence of unemployment, financial resources and party politics on economic development expenditures is estimated empirically in the London Boroughs. The statistical evidence indicates that the model provides a satisfactory explanation of inter-borough differences in economic policies and that the impact of party political and local tax-base variables is particularly important. The implications of the results for central policies towards local economic development and for analyses of local policy variation are discussed.

Introduction

The aim of this analysis is to identify influences on the economic policies adopted by local authorities.[1] The specific question considered is why, in an era of high unemployment, some authorities commit more money than others to the development of the local economy. A number of review articles and case studies have documented the nature and development of such policies. However, there has been no systematic comparative analysis of why different local authorities pursue different economic policies. This paper undertakes such an analysis by developing and testing a model of the influences on variations in local expenditure on economic development by the London Boroughs.

While economic intervention by local government has recently attracted considerable academic and political attention, it is not novel but stretches back to the 'municipal enterprise' of the late nineteenth and early twentieth centuries, (Chandler and Lawless, 1985). In addition, some areas have a tradition of land development for industrial use which began in the inter-war period or in the 1950s and 1960s (Camina, 1974). However, it is only in the last ten years that local authority economic policies have become more widespread and intensive. A number of reasons have been idientified for the more active economic role by local government. The first is the redefinition of the authorities' planning role under the 1971 Town and Country Planning Act. This legislation imposed a responsibility on authorities to survey local economic conditions and thereby enhanced the salience of this aspect of local policy-makers' environment (Johnson and Cochrane, 1981). A second factor is the 1972 Bains Report which exhorted local authorities to pursue the 'overall well-being' of the local area rather than the conventional focus on the provision of individual services (Muller and Bruce, 1981). Third is the economic recession which has seriously affected not only those areas traditionally designated as 'depressed' but also previously prosperous areas such as the West Midlands (Townsend, 1983). The fourth factor is the enhanced legitimacy bestowed on local government's economic role in the late 1970s by central government's urban policy. Department of the Environment Circular 71/77 exhorted local

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authorities to give greater priority to the economic implications of their activities and to appoint staff specifically to liaise with the business sector. In London in particular the Labour government's urban programme adopted in 1978 resulted in a reversal of planning policy which since World War Two had emphasised the prevention of industrial development and the dispersal of population (Buck *et al*, 1986). Since 1979 the Conservative government has imposed various restrictions on local autonomy (Newton and Karran, 1985). However, while local attempts to combat the recession have been viewed with ambivalence by central government, few specific restrictions have been placed on local economic development policies (Young, 1986).

The above reasons may explain the general expansion of local authorities' economic role, but national conditions cannot explain local policy variation. For such an explanation it is necessary to turn to the varying constraints and opportunities faced by local policy-makers and the varying characteristics of the policy-makers themselves. Section I below places economic policies in the context of a political theory of local policy variation. Section II develops a statistical model of inter-authority differences in economic policies and operationalises the concepts in the model. Section III presents empirical evidence on the validity of the model and Section IV analyses the policy implications of the results.

Political Theory and Variations in Local Economic Policies

Local authority policies are the product of political processes which resolve conflicts about the required response to local conditions. Therefore it is appropriate to explain local economic policies from the perspective of a political theory of policy variation. Following Easton's (1957; 1979) theoretical model of a political system it is possible to distinguish three types of influences on policy outputs: environmental conditions, inputs to the political system and the characteristics of the political system itself.

Easton's framework has been the dominant paradigm in 'output studies' of policy variations across sub-national governments in the USA and Western Europe (Boyne, 1985). The same general framework has also been employed in studies of local policy variation in England, although different terms have been used for the concepts (Hoggart, 1985). For example political scientists have categorised the independent variables as 'needs', 'resources' and 'disposition' (e.g. Boaden, 1971; Danziger, 1978). Similarly, economists have categorised influences on policy as 'social marginal efficiency' and 'social marginal cost' variables (e.g. Nicholson and Topham, 1971, 1975), or simply as 'supply side' and 'demand side' (e.g. Schofield, 1978; Storey, 1980). Despite the diverse terminology all these studies attempt to explain policy variations by reference to the environmental and political characteristics of local areas.

A recent modification of the traditional approach to local output research concerns the link between 'urban centrality' and public policies (Aiken and Depre, 1981; Sharpe and Newton, 1984). The argument is that the decisions of a local authority may be influenced not only by the characteristics of its population but also by the area's rank in the 'urban hierarchy'. Cities at the top of the hierarchy are the location for specialist facilities (e.g. entertainment and shops) which are used by commuters and visitors from neighbouring authorities and by tourists. It is argued that for local authority services such as transport and police the result is higher expenditure than required by the resident population alone. However the general relevance of central place theory to the explanation of local policy variation has been questioned on both theoretical and empirical grounds (Sorensen, 1987). More specifically, economic development policies are unlikely to be influenced by urban centrality. The theoretical literature is vague about the causal mechanism which links centrality to policy outputs. It may be that selected service benefits are offered as a lure to non-residents, or it may be that visitors to the area seek such services. Neither of these mechanisms seems likely to feature in the politics of economic development. Firstly, economic development policies are intended to benefit local residents and in particular to alleviate unemployment within local administrative boundaries (Young *et al*, 1980, Johnson and Cochrane, 1982). Thus economic development should be viewed as a 'divisible' service which excludes non-residents from direct benefits (Hansen, 1984). Secondly, pressures for economic development activities are much less likely to emanate from non-residents than from local electors and businesses.

While Easton's conceptual model points to influences on policy variation in general, it does not identify the specific influences in individual policy areas. Possible influences on local economic development policies have been identified from the existing review articles and case studies in this field. The hypotheses derived from these sources and the variables used in the model are set out in the next section.

Variables and Hypotheses

(a) Local Economic Policies

The concept of economic policy is operationalised in this analysis as net current expenditure on economic development per 1,000 population (NEDX). Many local authority policies are relevant to local economic conditions. Decisions on total expenditure and rate levels are probably amongst the most important (Cuthbertson *et al*, 1979; Gripaios and Brooks, 1982). The general distribution of funds between capital and current expenditure and between services may also have implications for local prosperity. In addition, local employment may be influenced by policies on the labour intensity of service provision (Boyne, 1987). The overall economic impact of such broad council decisions may well be greater than the impact of explicit economic development decisions. However, only economic development policies have the primary objective of directly protecting and promoting the local economy.[2]

Expenditure measures of the dependent variable in output studies have long been criticised for failing to reflect all the dimensions of the concept of 'policy' (e.g. Jacob and Lipsky, 1968; Munns, 1975). It is therefore important to emphasise that an explanation is being sought for variations in only one dimension of economic development policy: the actual commitment of money. Separate models may well be necessary to account for inter-authority differences in non-financial dimensions of policy (Le May, 1973). This is because the same level of expenditure may relate to different policy objectives, e.g., development *per se* or labour intensive development, jobs for any local residents or specifically for the 'disadvantaged'. In addition to recognising that the focus is on only one dimension of policy 'output', it is worth noting that expenditure levels may be unrelated to policy outcomes or impact (Dean and Peroff, 1977; Hinkley and Marquette, 1983). Indeed it is widely considered that the impact of economic development policies on the local economy is marginal relative to the impact of market forces and central government policies, (Cochrane, 1986).

The level of expenditure on services may be an inappropriate operationalisation of current financial policy if the expenditure has been built up over many years. In this case it is inappropriate to seek to explain variations in historically determined expenditure levels by reference to contemporary environmental and political variables (Tucker, 1982). For long established services, such as education, budgetary decisions are properly characterised as 'incremental' because expenditures develop in a routine and regular way (Hoggart, 1983). In this context the appropriate operationalisation of current policy is the change in expenditure in each budgetary cycle rather than the expenditure level.

However, in the policy area of economic development there is very little indication that the role of incremental decision routines is significant. According to Dempster and Wildavsky (1979), 'if you want to know whether an incremental method is actually being used, then it is the regularity of the increments or subtractions from past practice that is important.' Budget decisions on economic development by the London boroughs do not display such regularity. The correlation between change in NEDX in 1982/3 and 1983/4 is only 0.11; and that between 1983/4 and 1984/5 is only 0.14. The reason for the absence of an incremental pattern may be the relative novelty of spending on this function. Many London boroughs established a separate economic

[2] The CIPFA questionnaire from which the policy data is derived gives the following advice to councils about the definition of economic development expenditure: "This heading covers (a) The promotion of development in the authority's area by means of general publicity, the supplying of information, the advertisement of development opportunities and the organisation of promotional events such as seminars and 'workshops', particularly to maintain or attract employment ... Holiday publicity and contributions to tourist boards or similar bodies should not be included here but in the Leisure and Recreation statistics. (b) The implementation of development ... either by the authority itself or by developers in partnership with, or attracted by the authority. Expenditure by the authority on land acquisition, infrastructure, buildings and site management should be included. Expenditure and income on industrial estates and nursery factories should be included here. (c) All expenditure, such as grants, rate/rent relief schemes and loans, which is aimed at attracting industry to the local authority's area should be included."

development budget only in the mid to late 1970s (Buck *et al*, 1986). More broadly it has been argued that the constraints of incrementalism are weak on small services or expenditure categories (Sharpe and Newton, 1984). Whatever the specific cause, the absence of evidence of incrementalism means that the appropriate measure of current financial policy towards economic development is the level rather than the change in expenditure.

Analyses of local expenditure variation have obtained widely differing levels of explanation. The average amount of policy variation accounted for statistically in British output studies is 30–40 per cent (Boyne, 1985). However, as with incrementalism, there is a tendency for the explanatory power to decline as the proportion of total local authority expenditure constituted by the policy variable declines. Thus the output studies approach tends to be successful for services such as Housing, accounting for as much as 70 per cent of the variation in some analyses. By contrast, the approach tends to be unsuccessful for services such as Libraries or Leisure, accounting for little or none of the variation. This pattern of results suggests that while large services are subject to systematic constraints, small services are more open to idiosyncratic influences. It is therefore important to note that economic development expenditures represent a very small proportion of the total spending of the London Boroughs. Even for the highest spending authorities in the sample it represents only a little over one per cent of total net current expenditure. In the context of previous output studies results then, the share of total expenditure taken by economic development does not augur well for the explanatory power of the model outlined below.

(b) Environmental Conditions

The concept of environmental conditions relevant to economic development policies is operationalised through several measures of unemployment. Urban economies in general in the UK have suffered as a result of de-industrialisation and the spatial reorganisation of production (Hasluck, 1987). In London in particular employment has declined because of complete plant closure rather than relocation (Elias and Keogh, 1982). The extent of unemployment in the local population is a salient symptom of economic malaise and may be interpreted as a clear indication of a 'need' for spending on economic development. In addition to representing a problem in itself unemployment is likely to cause pressure on local housing and social services, thereby re-enforcing the case for a policy response.

The view that the scale of local economic intervention is positively related to unemployment in the area is almost ubiquitous in the case studies of local authorities and the more general review articles (e.g. Townroe, 1979; Johnson and Cochrane, 1981; Boddy, 1982; Young 1986). In addition, a number of sources identify youth unemployment levels as an important spur to action (Needham, 1982; Norton, 1983). It has also been suggested that it is not only the absolute level of unemployment but also the rate of increase in unemployment which influences the extent of a local authority's economic activity (Boddy, 1982; Young and Mills, 1983). Three measures of unemployment are used to investigate the validity of these arguments. First, GUN, the general rate of unemployment in 1981; second YUN, the general rate of youth unemployment in 1981; and third ΔGUN, the change in the general rate of unemployment between 1977 and 1981. ΔGUN is specified as the percentage point increase in the rate of unemployment, which shows the extra part of the economically active population which became unemployed between 1977 and 1981. This measure of change assumes that if an extra one per cent of the workforce become unemployed then the impact on NEDX will be similar whether the initial level of GUN was five per cent or ten per cent. Alternative specifications which weighted the change by the initial level of unemployment were experimented with but produced inferior results to those presented below (for a discussion of alternative measures of employment change see Crouch, 1982; Gillespie and Owen, 1982).

The choice of the measures of unemployment was restricted by the requirement to match precisely the administrative areas of the London boroughs. This is a crucial consideration given the territorial focus of local economic policies. For example in one London borough the employment strategy 'is based on the problems and needs of its own residents ... the existing administrative boundaries clearly define the immediate target area of council policies and the residents who benefit from them' (quoted in Young and Mills, 1983, 128). Ideally, annual measures of unemployment would have been used to investigate

the lagged response of economic policies to environmental conditions and to check for the impact of simultaneity bias on the estimated coefficients.

However this option was precluded by the absence of a regular and consistent source of data with the necessary correspondence to lower-tier local authority boundaries. This data restriction implies that the estimated coefficients for the unemployment variables may be attenuated in the later years of the study period. However this is unlikely to be a serious constraint on the interpretation of the coefficients because the pattern of unemployment across the London boroughs is very stable. For example, the level of general unemployment in greater London more than doubled between 1971 and 1981 but the correlation between the level in these two years was as high as 0.96.

(c) Inputs to the Political System

The concept of inputs is operationalised through measures of potential financial support for spending on economic development. Easton's framework suggests that policy makers may be influenced by two types of input: demands and supports. However the existing literature on economic development provides little evidence on the role of demands. By contrast, several sources have identified financial resources as an important influence on local economic policies. Two questionnaire surveys of economic development officers have found that inadequate finance is considered to be a key constraint on economic development activities (Falk, 1980; Mills and Young, 1986). Similarly, Camina (1974) found that authorities with a low rateable resource base tended to have a limited economic development role. More specifically, Camina found a statistically significant positive relationship between local rateable value and advertising expenditure. This result is consistent with the widespread empirical support in output studies for the not implausible proposition that income is a precondition of spending. Almost all such studies specify financial resources as central grants and the value of the local tax base. For the major traditional areas of local authority activity in the UK this may be an appropriate specification because there is a statutory obligation to provide services. Central grants are distributed on the basis of formulae which estimate the 'need' to spend on statutory responsibilities and on the basis of the ability to fund such expenditure from the local tax base (Bennett, 1982). However there is no statutory responsibility to spend on economic development and therefore measures of financial resources are required which take account of the discretionary nature of the activity.

The level of financial commitment to economic development may be constrained by the need to spend on services which there is a legal obligation to provide. In other words spending on economic development may be a function of the availability of discretionary income. The amount of such 'slack' resources can be gauged by deflating the value of central grants and the local tax base by the level of statutory expenditure requirements. This involves the estimation of local expenditure 'need' which is fraught with conceptual and practical problems (Bennett, 1982; Bramley, 1984).

An ideal measure of need for the purposes of this analysis would fulfil two criteria. First, the measure would reflect the specific need for local authority services rather than the general need for public services in the local area. Second, the components of the need measure would be weighted to match their relative importance in the pattern of service provision. Currently the most comprehensive and sophisticated attempt to meet these criteria on a regular annual basis is the measure of need used by central government to distribute 'block' grant to local authorities. This measure of need, the Grant Related Expenditure Assessment (GREA) estimates the spending required by each authority to provide a standard level of service. It is calculated on the basis of around 65 indicators of the requirement for local services. Many of these indicators are composite measures based on further sub-indicators (Society of County Treasurers). The data are grouped for block grant purposes into the following five categories:

A — People In The Area (e.g. number and age composition of the resident population, daytime net inflow of population, overnight visitors).
B — Physical Features Of The Area (e.g. size, population density, road mileage, number of domestic and non-domestic properties).
C — Social and Environmental Problems (e.g. special educational needs, unemployment, housing conditions, one parent families, elderly living alone).

D — Costs of Service Provision (e.g. labour costs of London salary weighting).
E — Special Requirements of Particular Services (e.g. incidence of crime and fires, mandatory expenditures, debt charges).

This information about local conditions is used to estimate the number of 'units of need' for service provision in each area. Each need indicator is then assigned a monetary weight based on the average cost of meeting a unit of need in the relevant group of local authorities. For each authority the number of need units is multiplied by the specified monetary weights to obtain the GREA. Such aggregate measures of need are inevitably open to the complaint that they are insensitive to the unique circumstances of individual areas (see, for example, Flynn, 1986). However for the purposes of this analysis it is not necessary that GREA's are a precise measure of the *absolute* level of service need in each area, but simply that they are a good proxy for the *relative* differences in statutory expenditure requirements across the London boroughs.

Two measures of sources of finance for economic policies are constructed by using GREA's in conjunction with central grants and the size of the local tax base. These are GRND, the ratio of central grants to GREA; and RVND, the ratio of rateable value to GREA. The estimated relationship between the resource variables and NEDX is not lagged because spending on economic development draws on funds available during the current financial year.

(d) The Political System

The concept of the local political system is operationalised through the party control of the council, using dummy variables to indicate either Labour or Conservative control. While councils in some rural parts of England are still controlled by 'independents', local politics in urban areas is dominated by the major national parties. Local elections in London have long been contested largely between Labour and the Conservatives (Young, 1975) and during the study period only one of the London boroughs (Richmond) was controlled by any other party. A one year lag is used for the party control variables because budgets are largely fixed towards the end of the financial year prior to that in which the money is spent.

Much of the literature on local policy variation has dwelt on the question 'does politics matter?' From the perspective of Easton's theoretical framework this general question is absurd: politics is the *sine qua non* of public policies. However the specific question of the importance of *party* politics is not so easily resolved. It is therefore necessary to consider why and how party politics might influence spending on economic development.

The rationale for the inclusion of party political variables in studies of local policy variation is not well developed, despite their pervasive presence. The implicit assumption in most studies is that different party ideologies will be expressed in different policies. There is evidence that the party affiliations of local politicians are associated with sets of policy preferences which are sufficiently coherent to represent ideologies (Gordon and Whiteley, 1977). Nevertheless the constraint of such ideologies on policy choices may vary between issues. Thus it cannot be assumed that Labour and Conservative councils will differ consistently on all aspects of policy; and still less can it be assumed that Labour control will be associated with higher spending on all services (Sharpe and Newton, 1984). However there are strong reasons for supposing that Labour and Conservative local authorities will display different levels of financial commitment to economic development.

At national level since 1979 the parties have advocated widely different responses to the economy in general and unemployment in particular. Labour has attached the highest priority to the reduction of unemployment whereas the Conservative government has stressed the overriding importance of reducing inflation. Further, Labour has advocated the alleviation of unemployment through public expenditure while the Conservatives have emphasised the role of the free market in the creation of 'real' jobs. Thus the general ideological distinction between the parties on the size and functions of the state are clearly reflected in their response to economic problems. More specifically at the local level expenditure on intervention in the urban economy has been a key feature of Labour councils pursuing the new 'municipal socialism', (Boddy and Fudge, 1984). This is supported by survey results which indicate that economic intervention is gener-

ally greater in Labour controlleld areas than in Conservative controlled areas (Mills and Young, 1986). The approach of Labour authorities to economic problems is illustrated by the belief of councillors in one London borough that 'the private sector operating alone in the free market is failing London and its people ... intervention, particularly the practical invovlement of local authorities, is essential to encourage new investment in industry' (Southwark Borough Council, 1986). Thus party politics can be expected to influence local economic policies because of differences between Labour and Conservative attitudes towards 'public' and 'market' repsonses to economic problems. It remains to consider *how* party political influences might operate.

Easton's systems model suggests that policy makers may influence policy outputs in two ways. First by a direct or additive effect which occurs regardless of environmental conditions or inputs. In the context of economic development this implies that Labour councils spend consistently more than Conservative councils whatever the level of financial resources or unemployment. The second role of policy makers is mediative rather than additive. This influence consists of 'conditioning' the impact of environmental conditions and inputs on policies. In the context of economic development the implication is that the effects of unemployment and financial resources are not constant but vary with party control. For example the presence of a Labour council might enhance the relationship between unemployment and spending while the presence of a Conservative council might dampen it.

The additive role of party politics suggests a model of the following form on the basis of the variables outlined above:

$$NEDX_i = a + b_1GUN_i + b_2GRND_i + b_3RVND_i + b_4LABC_i + e_i$$

By contrast the mediative role of party politics suggests a model of the following general form:

$$NEDX_i = a + b_5LABGUN_i + B_6CONGUN_i + b_7LABGR_i + b_8CONGR_i + b_9LABRV_i + b_{10}CONRV_i + e_i$$

where LABGUN = GUN if LABC = 1, otherwise
LABGUN = 0
CONGUN = GUN if CONC = 1, otherwise
CONGUN = 0
LABGR = GRND if LABC = 1, otherwise
LABGR = 0
CONGR = GRND if CONC = 1, otherwise
CONGR = 0
LABRV = RUND if LABC = 1, otherwise
LABRV = 0
CONRV = RVND if CONC = 1, otherwise
CONRV = 0

Statistical support for the hypothesised effects of LABC and CONC in the mediative specification requires that the impact on NEDX of the other explanatory variables differs significantly between Labour and Conservative boroughs (Wright, 1976). For example, the coefficient on LABGUN must be signiincantly greater than the coefficient on CONGUN.

Traditionally only the additive role of political parties has been estimated in studies of local policy variation. However, it has gradually been recognised that this procedure estimates only one of the potential role of parties in policy making (Godwin and Shepherd 1976; Hansen, 1981; Hoggart, 1984). Neither the additive nor mediative model is theoretically superior. In any specific policy area political parties may play either or both roles. Therefore the relative validity of the two formulations is an empirical issue which depends on the policy area in question. Although political parties are widely considered to influence economic development decisions there is in general little indication in the literature whether their role is additive or mediative. However case studies of economic policy making in two London boroughs suggest that policy makers condition the impact of the environment on policy outputs. According to Young and Mills the effects of unemployment on policies are 'mediated by the images, myths and power relationships that prevail within the organisation' (1983, 2). Similarly in a broader study of six London Boroughs it has been argued that responses to job loss 'are conditioned by the dispositions and preoccupations of local policy makers, their priorities, and how strongly they see a need to intervene' (Buck *et al*, 1986, 117). If such views are correct then the mediative model should produce superior statistical results to the additive model. This issue is explored in the discussion of the empirical evidence in the next Section.

Empirical Evidence

This section presents evidence on the impact of unemployment, discretionary resources and party politics on variations in economic policies across the 32 London Boroughs. Table 1 summarises the operationalisation of the concepts, the hypotheses and the data sources. The analysis was run for four separate financial years to alleviate the problem of interpreting a single 'snapshot' which might reflect a short-term disequilibrium amongst the variables (Brunner and Liepelt, 1972). The size of the sample differs slightly between the years because of missing data on the dependent variable for some cases.

Restriction of the analysis to the London Boroughs averts difficulties which would arise in the context of other lower-tier local authorities in England and Wales. These problems principally involve variations in regional aid status and variations in upper-tier county council economic policies. Such features are constant across the London boroughs which all have the same regional aid status (non-assisted) and in the study period were covered by the same upper-tier authority, the Greater London Council (see Eisenschitz and North, 1986).

Following the lag structure for each of the independent variables outlined above, empirical estimates were derived from recursive regression models using OLS. Various combinations of the independent variables were used to test the hypotheses outlined in Section II and to examine the relative validity of the additive and mediative specifications of the role of party politics.

(a) The Explanatory Power of the Model

The statistical evidence presented in Table 2 shows that a satisfactory explanation of variations in economic development expenditure is provided by the environment, input and political system variables. The explanatory power of the model is highly significant in each year, accounting for 60 per cent to 75 per cent of the variation in NEDX. These results indicate that decisions on economic development are subject to considerable systematic constraints and are not simply the product of idiosyncratic circumstances in each authority.

Table 1

Variables in the Analysis

Concept	Operationalisation	Source	Label	Expected Sign
Economic Policy	Net Current Expenditure on Economic Development, £ per 1,000 population 1981 2, 1982 3, 1983 4, 1984 5	1.	NEDX	
Environmental Conditions	(a) General unemployment Rate, 1981	2.	GUN	+
	(b) Absolute Change in General Unemployment Rate, 1977–81	2,3.	ΔGUN	+
	(c) Youth Unemployment Rate, 1981	2.	YUN	+
Inputs	(a) Ratio of Central Grants to Expenditure Need, 1981 2, 1982 3, 1983 4, 1984 5	4.	GRND	+
	(b) Ratio of Rateable Value to Expenditure Need, 1981 2, 1982 3, 1983 4, 1984 5	4,5.	RVND	+
Political System	(a) Labour Control, 1980, 1981, 1982, 1983,	6.	LABC	+
	(b) Conservative Control, 1980, 1981, 1982, 1983	6.	CONC	−

Data Sources:
1. *Planning and Development Statistics* (London, CIPFA, annual)
2. *1981 Census* (London, OPCS, 1982)
3. *National Dwelling and Housing Survey* (London, HMSO, 1978)
4. *Financial and General Statistics* (London, CIPFA, annual)
5. *Rate Collection Statistics* (London, CIPFA, annual)
6. *Municipal Yearbook* (London, Municipal Publications, annual)

Table 2

OLS Regression Results

	1981/2(n=27)	1982/3(n=28)	1983/4(n=30)	1984/5(n=27)
R^2	0.61**	0.75***	0.74***	0.60**
$\bar{R}^2$	0.49	0.68	0.67	0.47
F	5.1	10.5	10.8	4.8
LABRV	2780**	6351***	3644**	6676**
	(3.4)	(5.3)	(3.6)	(3.0)
CONRV	−415	−231	−198	63
	(0.5)	(0.2)	(0.2)	(0.0)
LABGR	−53	6	989	4789
	(0.0)	(0.0)	(0.5)	(1.3)
CONGR	2746	5065	2167	120
	(1.1)	(1.7)	(1.0)	(0.0)
LABGUN	394	283	253	−316
	(1.5)	(0.9)	(1.0)	(0.6)
CONGUN	636	338	161	400
	(2.0)	(0.7)	(0.5)	(0.6)
Constant	−2546	−3466**	−1428*	−1256
	(2.0)	(3.2)	(2.1)	(0.8)

Notes: 1. t statistics in brackets
2. significance levels – ** at least 0.01
*** at least 0.001

The results for only the mediative specification of the role of party politics are shown in Table 2, because the additive specification yielded an inferior level of statistical explanation in each year. The R^2's for the additive specification were 0.45 in 1981, 0.47 in 1982, 0.61 in 1983 and 0.51 in 1984.[3] Thus the conventional additive formulation not only misrepresents the role of party politics but also underestimates the impact of the set of independent variables on NEDX. It may therefore be the case that the inadequate operationalisation of political system variables in many previous output studies has artificially deflated the levels of explained variation obtained. Differences in the results for the two specifications are considered in more detail in the discussion of the estimated effects of the explanatory variables.

(b) Environmental Conditions

Although the three aspects of unemployment outlined above are conceptually distinct they are virtually indistinguishable statistically.[4] Thus in practice it is impossible to isolate the separate effects of GUN, ΔGUN and YUN. The very high correlations between the measures of unemployment produced almost identical results when any one of them was included in the regression models. Consequently only the results for GUN are presented, but it should be emphasised that this variable is serving as an indicator of adverse employment conditions in general.

The statistical evidence offers little support for the hypothesised positive relationship between unemployment and spending on economic development. In Table 2 none of the coefficients for the impact of GUN mediated by party politics is significant. When entered additively instead GUN is significant only in 1981.[5] One interpretation of these results might be that GUN is a poor proxy for unemployment after 1981. However this seems unlikely given the stability in the spatial distribution of unemployment in London over time. Further, zero-order correlations between GUN and NEDX are very consistent over the four years in the study period, at 0.49, 0.45, 0.49 and 0.48 respectively.

[3] The F statistics for the difference between the mediative model R^2 and the additive model R^2 are: 1981, 4.1; 1982, 11.8; 1983, 5.8; 1984, 3.3.

[4] The correlations between the three measures are: GUN and YUN, 0.94; GUN and ΔGUN, 0.98; YUN and ΔGUN, 0.93.

[5] It is unlikely that multicollinearity is masking the significance of GUN when it is entered additively in the model NEDX = f(LABRV, CONRV, LABGR, CONGR, GUN). The R^2_i for GUN in this model is 0.50 in 1982, 0.43 in 1983 and 0.49 in 1984.

Thus the results in Table 2 suggest that case studies and review articles have over-emphasised the impact of unemployment on economic development expenditure decisions. However it may be that the two sets of evidence can be reconciled by adopting a perspective outlined by studies of 'diffusion of innovations' across sub-national governments (Lutz, 1986). This suggests that the initial problem which prompts a policy response in some areas becomes less important as the policy pervades all areas. Thus although there may have been a link between unemployment and the early adoption of economic intervention, that link may have weakened as the policy spread in an almost modish way to become part of the repertoire of all the boroughs. In the context of English local government the London boroughs may be in an analogous position to the regional groups of sub-national governments identified as important facilitators of innovation diffusion elsewhere (Walker, 1969; Harisalo, 1982).

Thus it is possible that the impact of unemployment has been eroded as all areas have been drawn to emulate or driven to compete with the innovative boroughs. If the decision to intervene in the local economy is a result of such stimuli then the subsequent level of spending depends not on local employment conditions but on variables such as financial resources and political disposition. Case studies of the history of economic policies in individual authorities would be required to test the diffusion perspective and to examine the roles of emulation and competition. But whatever the specific reasons the evidence indicates that unemployment has little net effect on contemporary expenditures on economic development.

(c) Inputs

The empirical evidence offers no support for the hypothesised impact of GRND on NEDX. None of the estimated coefficients for GRND is significant at the 0.05 level, either when the variable is mediated by party politics or when it is entered additively instead.[6] Fiscal stress has been imposed on many local authorities by cuts in central grants in recent years, (Gibson *et al*, 1987). The failure of revenues to keep pace with required expenditures has been especially serious in the London boroughs (Audit Commission, 1987). Therefore it may be that even those areas with the highest GRND still had no slack grant funds to divert from spending on statutory functions.

The pattern of results for RVND is markedly different from that for GRND. There is strong and consistent support for the hypothesised positive relationship between discretionary rate resources and economic development expenditure. However the impact of RVND on NEDX occurs only in contexts where Labour control is also present. All the estimated coefficients for LABRV are positive and highly significant, but none of those for CONRV is significant. Thus while high RVND leads to high spending in Labour controlled authorities this does not occur in Conservative controlled authorities. In other words high RVND is a necessary condition of high spending but is not in itself a sufficient condition. The results indicate that it is the interaction of discretionary rate resources with party control which is crucial to economic development decisions.

(d) Political System

The statistical results support the hypothesised difference between the expenditure decisions of Labour and Conservative councils. The higher level of explanation provided by the mediative model indicates that the role of party politics is to enhance or suppress the impact of the other variables on NEDX. To test whether LABC or CONC had an additive as well as a conditioning effect, each party control variable was added separately to the mediative model. However no significant increase in the R^2 was produced in any of the four years.[7] Thus Labour authorities do not spend more than Conservative authorities regardless of environmental constraints and inputs to the political system.

The evidence indicates that party politics has an important impact on the relationship between tax base resources and economic policies. When RVND is entered additively in place of LBRV and CONRV the explanatory power of the model falls substan-

[6] The non-significance of GRND when it is entered additively is not the product of multicollinearity. In the model NEDX = f(LABRV, CONRV, LABGUN, CONGUN, GRND), R^2_i for GRND is 0.21 in 1981, 0.35 in 1982, 0.27 in 1983 and 0.15 in 1984.

[7] The R^2's when LABC was added to the mediative model were 0.63, 0.76, 0.74 and 0.60; when CONC was added the R^2's were 0.63, 0.75, 0.74 and 0.60.

tially, to 0.45 in 1981, 0.51 in 1982, 0.64 in 1983 and 0.49 in 1984.[8] Thus the LBRV and CONRV coefficients are significantly different: the relationship between RVND and NEDX is strengthened by Labour control and weakened by Conservative control.

By contrast, the results show that party politics does not significantly condition the impact on economic policies of either grant resources or unemployment. The R^2 provided by the mediative model does not change significantly if either of these variables is entered additively.[9] Thus Labour and Conservative authorities behave similarly in their responsiveness to unemployment and in their use of grant resources to support economic development activities.

In sum then party politics does make a difference to economic development policies. However the impact of parties occurs through the mediation of RVND rather than through a direct influence on expenditure regardless of the circumstances. This pattern of results corroborates the argument that the limited role attributed to political variables in empirical studies of local policy variation may well be more reflective of method than substance (Boyne, 1985).

Policy Implications

Two aspects of the statistical results particularly merit discussion in the context of current central government policies towards local authorities. These are the weak net impact of unemployment and the strong impact of rate resources on local economic policies.

Since 1979 the Conservative central government has adopted a series of policies which reflect a profound scepticism about the effectiveness and efficiency of local government. Pursuant to its broad ideological disdain for the public sector the Conservative government has sought to reduce the functional scope and financial autonomy of local government in general and urban local authorities in particular. Following the 1987 general election this approach has been reinforced by policies on the two major local services, education and housing, and by plans to reform local taxation. The government also proposes to reduce local authorities economic role by establishing urban development corporations and by allocating grant money straight to private sector organisations.

In the context of this baleful climate for local government it is worth noting that the weak net relationship between GUN and NEDX does not lend force to central government's case for curbing local authorities economic role. As the zero-order correlations between GUN and NEDX listed above show, there is a tendency for high spending on economic development to occur in the same areas as high unemployment. Although the regression results indicate that this pattern is not caused by unemployment *per se*, the policy response nevertheless varies positively with 'need' and thereby corresponds to a rough 'territorial justice' (see Pinch, 1985). Thus while the targeting of funds on unemployment by local democratic institutions is far from perfect, it may well be no worse than central government's record in the spatial distribution of resources to deal with urban problems (see for example Bentham, 1985).

The evidence on the relationship between RVND and NEDX suggests that the government's commitment to the comprehensive reform of local taxation has important implications for local economic policies. The government proposes to centralise business rates and to replace domestic rates by a poll tax (Boyne, 1986). This will limit all authorities to a uniform and greatly reduced tax base per capita. One of the necessary conditions for high spending on economic development will thereby be removed, because discretionary resources from a high ratio of rateable value to expenditure need will no longer be available. Further, the coincidence of unemployment and population decline in the same areas (Redfern, 1982) is likely to worsen the problems of funding economic development from the poll tax. Reductions in the new tax base as outmigration occurs will increase the difficulty of raising the required revenue in precisely those authorities where economic conditions are most adverse.

Thus rate reform is likely to fetter the economic activities of local authorities, and in particular to rein back spending by Labour authorities. This in turn means that 'public' approaches to urban

[8] The F statistics for the difference between the R^2's produced by the two models are: 1981, 8.2; 1982, 20.2; 1983, 8.9; 1984, 5.5.
[9] The R^2's for the model NEDX = f(LABRV, CONRV, LABGR, CONGR, GUN) are 0.60, 0.74, 0.73, 0.58; the R^2's for the model NEDX = f(LABRV, CONRV, GRND, LBGUN, CONGUN) are 0.58, 0.72, 0.73, 0.58.

economic problems will be curtailed. The eventual impact of this change on local conditions depends on the relative merits of public and market strategies for the regeneration of local economies. At present both sides can claim that their favoured approach has never been implemented sufficiently to be allowed to work (Duncan and Goodwin, 1985). Whatever the supposed long term benefits of more emphasis on a market approach, the short term cost of rate reform for local economic development is likely to be less diversity and therefore less opportunity to learn from testing different responses in different areas.

Conclusion

The above analysis examined the validity of various hypotheses about why different local authorities adopt different economic policies, in the context of a political theory of policy variation. The statistical model developed sought to explain variations in economic policies by reference to environmental conditions, inputs to the political system and the characteristics of the political system itself. The empirical evidence showed that such variables account for a substantial proportion of the variation in spending on economic development by the London boroughs. More specifically, party politics and the availability of discretionary income from the local tax base were found to be important influences on expenditure decisions.

The nature of the *joint* impact of party politics and financial resources means that it is inappropriate to evaluate their 'relative importance'. While both Labour control and discretionary rate income are necessary conditions of above average spending, neither alone is a sufficient condition. Thus although Labour councils may be favourably disposed towards high levels of economic intervention, their ability to adopt such policies is contingent on the availabiiity of tax base resources beyond that necessary to pay for statutory services. This implies that if central government denies Labour authorities access to such resources then economic development activities are likely to be seriously curtailed.

Finally, as noted above, output studies models do not generally perform well when the dependent variable is specified as expenditure on a policy which represents a low proportion of total spending. The relatively high explanatory power of the model suggests that economic development expenditure may have a 'symbolic' importance which other small categories of expenditure do not possess. To this extent the expenditures may represent authorities' concern *to be seen to be doing something* in response to a politically salient issue, even if the total financial commitment is relatively small.

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CHAPTER VII

CENTRAL GRANTS AND LOCAL POLICY VARIATION

Abstract

This paper estimates the impact of central grants on local spending decisions in England in the 1980's. The analysis is based on a more explicit conceptual framework and a more appropriate methodology than conventionally used to measure grant effects in 'output studies' of local policy variation. A set of six hypotheses is derived from political and economic theories of grant impact. The relationship between grants and expenditure change is estimated through a TSLS regression model. The main empirical results are that grants are an important constraint on spending decisions and that different types of grants have different effects: lump sum grants are substitutive and matching grants are stimulative. The evidence also indicates that spending is influenced by party politics, service needs and the local tax base.

CENTRAL GRANTS AND LOCAL POLICY VARIATION

The impact of politics on local policy variation remains difficult to detect, despite a large and well established body of research[1]. Most 'output studies' of the determinants of local policies have concentrated on the internal political characteristics of local areas. Much less attention has been devoted to the potential influence of external political forces, such as central government policies[2]. Considerable time has elapsed since central grants were declared the 'forgotten variable' in output studies,[3]but the omission has generally persisted. Further, when grants have been included as an explanatory variable their impact on policies has been poorly conceptualised and measured.

The aim of this paper is to evaluate empirically the effect of central grants on local spending decisions. The impact of grants is estimated on the basis of a more explicit conceptual framework and a more appropriate methodology than hitherto employed in output studies. Part I of the paper analyses political and economic theories of the role of grants. Part II assesses the quality of the existing evidence on the relationship between central grants and local policies in the U.K. Part III specifies a statistical model of the impact of grants on local expenditure and Part IV presents evidence on the validity of the model in the context of English local authorities.

I THEORIES OF GRANT IMPACT

This section specifies six hypotheses concerning the relationship between central grants and local spending decisions. Three hypotheses are derived from political models of central-local relations, and three hypotheses are derived from economic models of income and price effects. The two theoretical perspectives borrow substantially from each other. For example, the political perspective suggests that grant impact is mediated by local economic variables. Similarly, the economic perspective suggests that grant impact is mediated by local political variables. Thus the six hypotheses belong to a broad 'political economy' of grant impact.

(a) The Politics of Grants

The role of grants is a key component of political models of central-local relations. The 'dependence' of local authorities on central grants has long been viewed as an important influence on local budgetary behaviour(4). Recently it has been suggested that "it would be difficult to overstate the dominance of financial considerations in the current relationship between central and local government"(5). In general it has been argued that central funding undermines local fiscal autonomy. More specifically, if grant levels are high then changes in grant will dominate local spending decisions.

In the U.K. an 'agency' model of low local autonomy and high central control has traditionally been counterposed with a 'partnership' model of local discretion within limits agreed between central and local government(6). In the 1960's and early 1970's the credibility of the agency model was undermined by evidence of local discretion. For example, Boaden found that the authorities most reliant on grant funding did not tend to conform to average expenditure levels for all authorities or to cluster at a similar expenditure level(7). Ashford found that authorities did not become more uniform in their allocation of expenditure between services as the level of grant funding in the local government system as a whole increased. He concluded that "the heavy financial dependence of British local authorities on central government has not produced a demonstrable effect on policy choice in the sub-national system"(8). In the late 1970's the prevailing model of central-local relations absorbed elements of the literature on pressure groups and corporatism. Local government was viewed as trading the responsibilities of 'insider status' for guaranteed access to the policy process in central government(9). The most well developed variant of the shift in perspective was Rhodes' 'power-dependence' model which emphasises the role of negotiation and resource deployment within rules which are themselves modified by conflict resolution. Thus "the relationship between centre and periphery is not a 'control' relationship. Rather, central departments and sub-national public sector organisations are inter-dependent"(10).

However, since 1979 there has been a shift back towards the agency model as central government has sought to curb the powers and spending of local government. Central attempts to cut local expenditure have been pursued principally through cuts in grant. The grant funded percentage of net local government spending was reduced from 61% to 46% between 1979 and 1986. In addition grant penalties have been imposed on authorities deemed to be overspending by central government. Such policies have led to the view that "the actions of the Conservatives show quite clearly that local authorities in Britain are weak in relation to a central government which can ... impose unilaterally its own policy priorities"(11). The revised model of central-local relations in the U.K. may therefore be characterised as 'local governing under central pressure' or 'central power and local dependence'.

If the renewed credibility attached to the agency model is valid then central grants constitute severe constraints on local fiscal autonomy. In this context variations in local spending decisions should be closely correlated with variations in grants.

It has been argued that the impact of grants on local spending is not uniform across authorities but varies with local financial circumstances. There are two versions of this argument. First, changes in grants will have a stronger impact on those authorities which were previously most reliant on grant funding. If grants are high then local policy makers are more likely to comply with central

government policies and less likely to respond to local demands. The view that high grants are incompatible with local 'accountability' was endorsed and effectively popularised by the Layfield Report[12]. Academic members of the Layfield committee have subsequently restated the argument that if a large proportion of expenditure is covered by grants then spending decisions are dominated by changes in grant support. For example, "local government responsibility is undermined by a high level of grant ... because the attention of a local authority is turned more to the centre than to its voters in the local community"[13]. Similarly, as grant funding increases "the budgetary process in local authorities tends to become grant led ... (and) there is greater reluctance to take independent local action"[14].

A second local financial variable which may mediate the impact of grants is the cost to ratepayers of replacing grant cuts. In particular, local authorities are viewed as sensitive to the 'anticipated reaction' of the electorate if rate levels are increased to compensate for grant losses. In this case the impact of grants on spending decisions is caused by the 'gearing effect'[15]. For example, suppose that two authorities each spend £100 per capita but that the percentage of spending covered by grants is 30% in one and 70% in the other. If grant funding is cut by £10 per capita in both, then the increase in local taxes necessary to compensate for the loss is only 14% in the first authority but is 33% in the second.

Therefore it may be that the second authority will be more reluctant to replace the grant revenue than the first. Sharpe and Newton have argued that in the 1980's "those local authorities in receipt of the highest levels of grant will, given the gearing effect, be subject to disastrous financial instability arising from fairly small reductions in the central grant".(16)

Thus political models of central-local relations yield three hypotheses on the relationship between central grants and local spending:

HI Variations in central grants are significant constraints on variations in local expenditure decisions.

HII The impact of grants is significantly mediated by the prior level of grant funding.

HIII The impact of grants is significantly mediated by the rate cost of replacing grant cuts.

A major gap in the literature on the politics of grants is the absence of specific predictions about the magnitude of grant effects on local spending. How much expenditure change will be produced by a given change in grants? For hypotheses on this issue it is necessary to turn to the economic theory of grants.

(b) The Economic of Grants

Economic theory provides a sophisticated set of predictions about the direction and size of the impact of different types grants[17]. Four hypothetical grant effects, from complete substitution to stimulation, are illustrated in diagram I. The vertical axis shows total net expenditure, funded from both grants and local tax revenues. The horizontal axis shows local authority income from central grants.

Complete substitution occurs if an increase in grant results in no change in total expenditure. In this case all of the extra grant revenue is used to cut local taxes. In effect local decision makers are treating central grants and local taxes as perfectly interchangeable, simply substituting one source of funds for the other. This situation is represented by the horizontal axis in diagram I: expenditure is unresponsive to shifts in grant.

If partial substitution occurs then an increase in grant produces some increase in spending, but the increase is less than the full amount of the grant. The remainder of the extra grant income is used to cut local taxes. The specific example of partial substitution shown in diagram I is midway between complete substitution and no substitution. In this instance an extra £10 of grant would be distributed equally between lower taxes and higher spending.

DIAGRAM I: HYPOTHETICAL EFFECTS OF GRANTS ON SPENDING

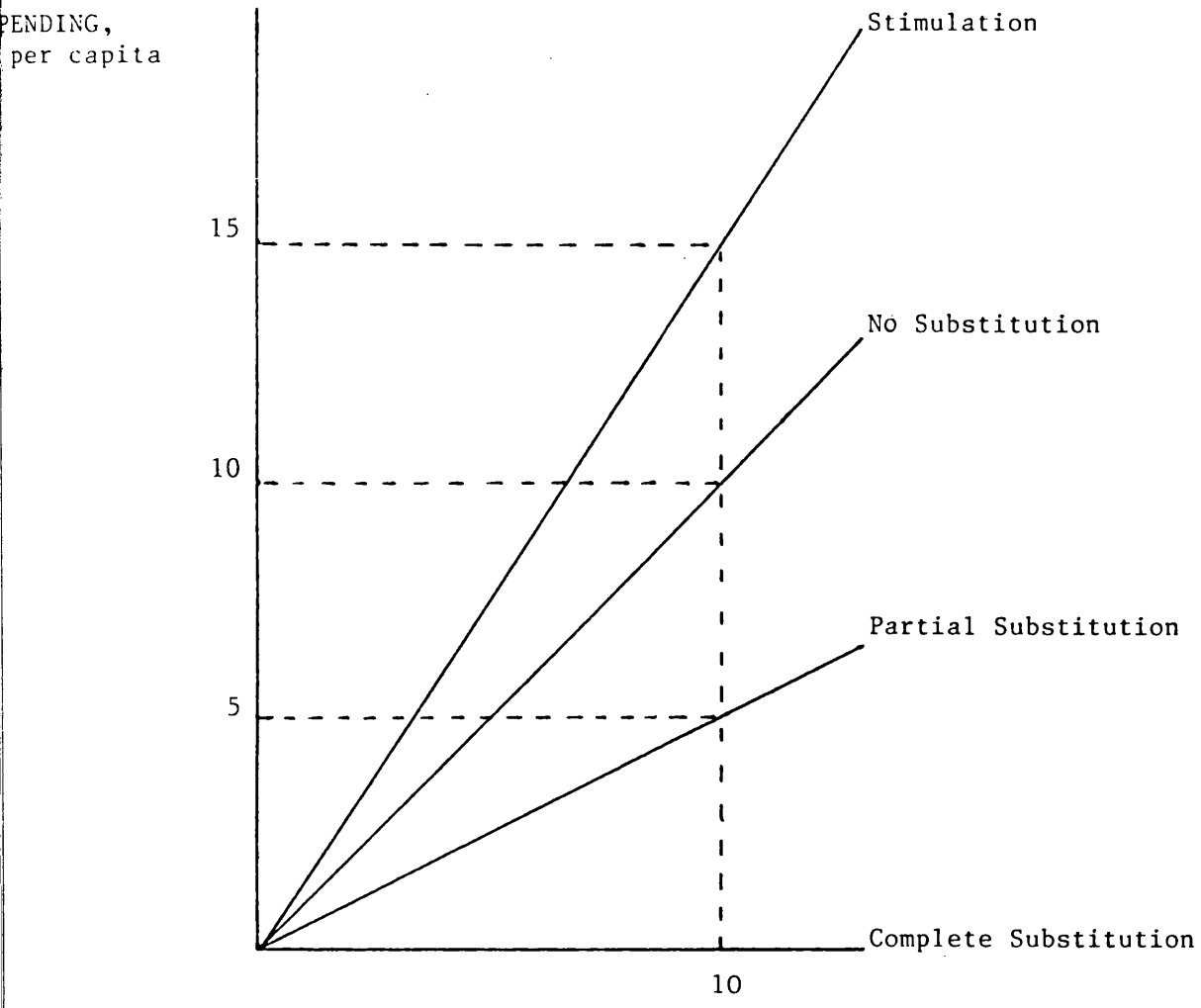
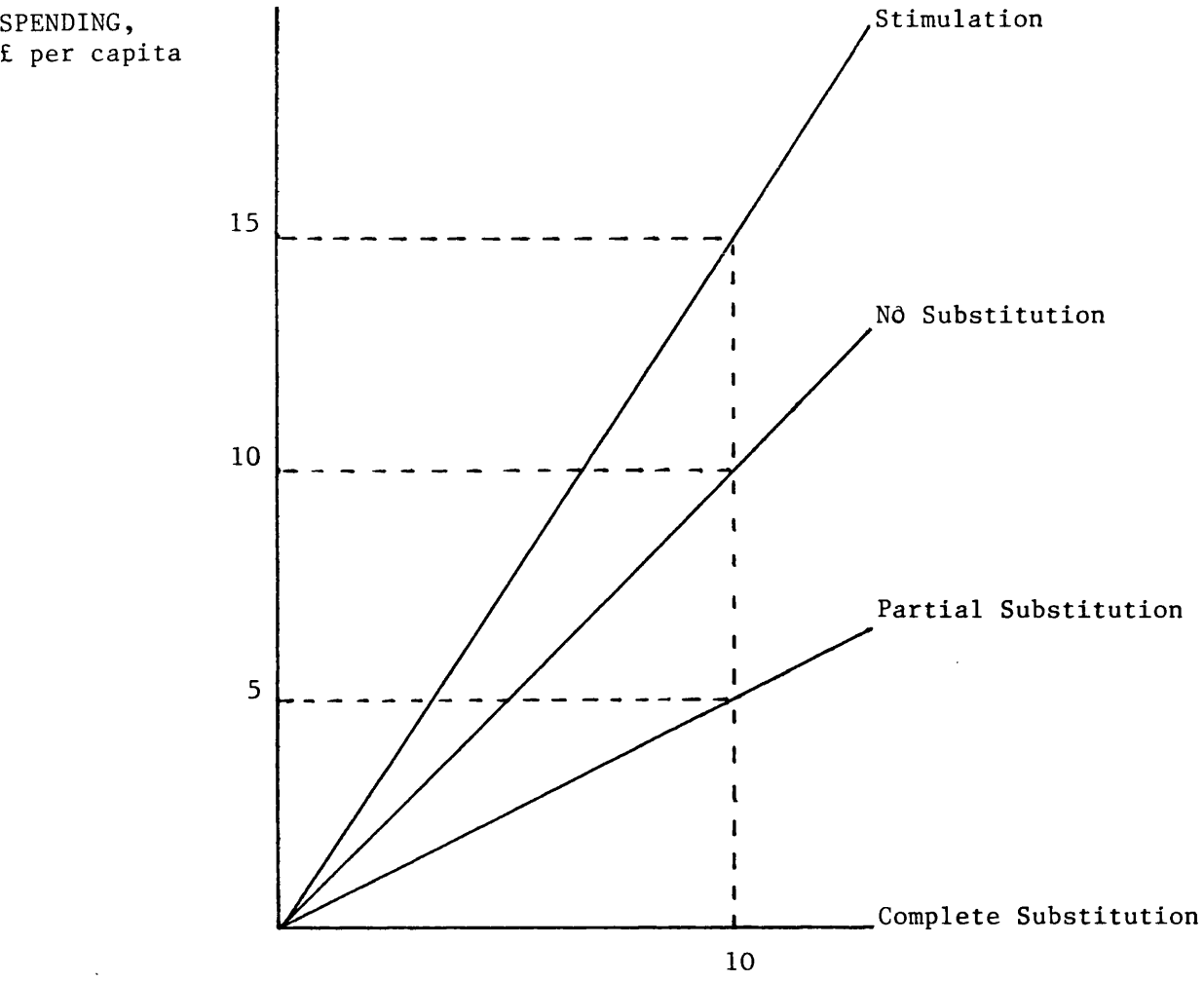


DIAGRAM I: HYPOTHETICAL EFFECTS OF GRANTS ON SPENDING



No substitution occurs when extra grant funds are all allocated to expenditure which therefore increases by the value of the grant. In this case an increase in grant results in no change in local taxes. This situation is represented by the 45^{o} line in diagram I, where a shift in grant produces an identical shift in spending.

The final hypothetical impact of grants to be considered is stimulation. This occurs if extra grant produces an increase in expenditure which exceeds the value of the grant. In this situation not only is the whole grant allocated to expenditure but local taxes also rise. The specific example of stimulation in diagram I shows an increase in spending of £15 in response to an increase in grant of £10.

Economic theory suggests that the extent of substitution or stimulation depends on whether grants are 'lump-sum' or 'matching'. A lump-sum grant is provided as an unconditional supplement to local community income. The extra funds can be used as local decision makers see fit, but in general the predicted impact of a lump-sum grant is partial substitution. If local authority services are 'normal' goods then their consumption will rise because of the increase in the income of the local community. However, the rise in local authority expenditure will be less than the full value of the grant. The remaining portion of the extra income will be spent on private goods, via a cut in local taxes. The balance between local services and private goods will depend on their relative income elasticities of demand.

Matching grants are paid as a supplement to local revenue but with strings attached which require the fulfilment of certain formal conditions. First, matching grant receipts are conditional upon the allocation of the money to service provision rather than local tax cuts. Second, local authorities must cover a proportion of total expenditure from their own revenues. The payment of a matching grant is effectively a reduction in the relative price of local authority services compared with other goods. This price cut draws expenditure away from private consumption and towards the consumption of local authority services. Thus in general the predicted impact of a matching grant is stimulation. A further distinction can be drawn between the hypothesised effects of 'open' and 'closed' matching grants. A closed matching grant offers a price cut only as far as a level of consumption designated by central government. Thereafter the subsidy is removed and the full cost of further spending falls on local tax revenues. Thus the economic perspective on income and price effects suggests a hierarchy of grant impacts: open matching grants are stronger than closed matching grants which are stronger than lump-sum grants.

The 'conventional' economic theory of grants outlined above assumes that local authority decisions are analogous to the response of an individual consumer to income and price changes. Thus the complexity of local politics can be set aside and grant effects can be treated 'as if' they resulted from the behaviour of the median voter(18).

However, the validity of this assumption has been undermined by empirical analyses of grant effects in the U.S.A.[19] For example, according to the median voter model, a rise in lump sum grants of £10 or a rise in private incomes of £10 should have roughly the same impact on local authority expenditure. In this case the extra grant is simply a 'veil' for a cut in central government taxes. However, the impact of lump-sum grants on spending by states and localities in the U.S.A. is generally much greater than the impact of private incomes. Thus the consequences for local spending differ substantially if additional funds are placed in private pockets rather than the public purse. This has become known as the 'flypaper effect': money sticks where it hits. The explanation offered for this phenomenon is that the median voter is not the actual decision maker[20]. Instead, grant responses are determined by policy makers who prefer to retain the funds for their own purposes rather than pass the money on to local taxpayers. Local policy makers effectively swindle their constituents but escape electoral sanctions because voters suffer from a 'fiscal illusion' about the actual nature of the grants.[21]

To square the economic theory of grants with the evidence it has therefore been necessary to replace the median voter model with a less simplistic model of local politics. The revised economic theory implies that grant impact depends on whether local policy makers prefer extra spending or lower taxes.[22] For example, Labour

authorities may value spending increases more than tax cuts but the reverse may be true for Conservative authorities. If so, an increase in lump-sum grants will cause less substitution in Labour councils than Conservative councils. Similarly, an increase in matching grants will cause more stimulation in Labour than Conservative councils.

Thus economic theory provides three further hypotheses on the relationship between central grants and local spending:

HIV: The impact of lump-sum grants is partial substitution.
HV: The impact of matching grants is stimulation.
HVI: The impact of grants is significantly mediated by local politics.

The procedures for testing these six grant hypotheses are discussed in Section III and empirical evidence on their validity is presented in Section IV. The next section evaluates the existing evidence on the relationship between central grants and local spending in the U.K.

II ESTIMATES OF GRANT IMPACT IN THE U.K.

Table I summarises the evidence on grants yielded by studies of local policy variation in the U.K.[23] The statistical results relate to only three of the six grant hypotheses listed above: HI, HIII and HIV. The other three hypotheses have not been tested. The evidence is divided into three categories which correspond to the types of grant tested: lump-sum, matching and 'total' which includes both forms of grant. Few of the studies contain much discussion of the specification or the impact of the grant variables which they include[24]. Therefore, some analysis of the results is necessary to extract the implications for political and economic theories of grants.

The interpretation of the evidence is least complex where the measure of fiscal policy is total expenditure and grant impact is estimated using unstandardised regression coefficients (see b values in Table I). In this case complete substitution is indicated if the coefficient is not significantly different from zero; partial substitution if it is significantly greater than zero but significantly less than one; no substitution if it is not significantly different from one; and stimulation if it is significantly greater than one[25]. The implication of the evidence is less straightforward in studies which present only

TABLE I: ESTIMATES OF GRANT IMPACT

(a) LUMP-SUM GRANTS

Study	Policy	Control Variables	Grant Impact
King, 1973	Rate Poundage, 1976	None	Stimulation
Jackman and Sellars, 1978	Rate Poundage, 1974-1976	None	Stimulation
Foster et al, 1980	Total Expenditure, 1972	Needs, Tax Base, Politics	No substitution (b = 0.94)
Cuthbertson et al, 1981	Total Expenditure, 1971	Tax Base, Politics	Partial substitution (b = 0.40)
Bennett, 1982	Total Expenditure & Rate Poundage 1974-81	Needs, Tax Base, Politics	Various: complete substitution to stimulation
Gibson, 1982	Total Expenditure, 1981	Politics	Partial substitution (b = 0.12)

(b) MATCHING GRANTS

Study	Policy	Control Variables	Grant Impact
Boaden, 1971	Rate Poundage, 1965	Needs, Tax Base, Politics	Stimulation
Cuthbertson et al., 1981	Total Expenditure, 1971	Tax Base, Politics	Partial substitution (b = 0.20)
Gibson, 1982	Total Expenditure, 1981	Politics	Complete substitution (b insignificant)

(c) TOTAL GRANTS

Study	Policy Measure	Control Variables	Grant Impact
Oliver and Stanyer, 1969	Rate Poundage, 1964	None	Stimulation
Danziger, 1978	Total Expenditure, 1960, 64, 68	Needs, Tax Base, Politics	Partial substitution (b = 0.69)
Page, 1980	Total Expenditure & Rate Poundage 1979	Needs, Politics	Stimulation
Greenwood, 1981	Total Expenditure, 1975 to 1979	None	Complete substitution
Sharpe and Newton, 1984	Total Expenditure, 1972	None	Ambiguous: Partial substitution, No substitution or stimulation.

standardised measures of grant impact (e.g. a correlation coefficient or Beta weight). In this context a positive relationship between grants and spending may indicate partial substitution, no substitution or stimulation. However, more precise information is available if such studies analyse local taxes as well as expenditures(26).

The general pattern of the empirical evidence is easy to summarise: chaos. The estimated grant coefficients are diverse and display little consistency even across studies of the same type of grant in the same time period.(27) Much of the evidence suggests that the impact of grants is significant and therefore supports HI, however, there is little support for either HIV or HV. For both lump-sum and matching grants the estimates cover the whole range of hypothetical effects, from complete substitution to stimulation. This implies either that the economic theory of grants is incorrect, or that the evidence is invalid. There are strong arguments in favour of the latter interpretation. All the studies are affected by at least one of three important methodological problems: the absence of controls for the influence of other variables; the failure to correct for the potential impact of simultaneity bias; and the use of historically determined variables to analyse contemporary fiscal relationships. The implications of each of these problems are discussed in turn.

The diversity of the evidence is probably attributable in part to the different variables tested alongside grants. To derive valid estimates of the influence of grants on spending it is necessary to take other relevant influences into account. Therefore, on this criterion, the most credible results are provided by studies which examine the impact of grants while controlling for local needs, resources and politics. Such controls are particularly important because the bulk of grant funding in the U.K. is intended to compensate authorities for differences in their needs and resources. In practice 'equalisation' of need and resource variations is far from perfect but high need and low resource areas generally receive high grants(28). In addition, Labour party representation on local councils tends to be collinear with needs and resources. Therefore, if a grant variable is tested in isolation then it will tend to pick up the effect of these other variables and the estimated coefficient is likely to be biased. For example, the absence of control variables may explain why lump-sum grants appear to be stimulative in the studies by King and by Jackman and Sellars.

The problem of simultaneity bias undermines the validity of all the evidence on the impact of matching grants and total grants. Every study in these categories uses ordinary least squares methods to estimate the relationship between grants and local fiscal policies.

This is appropriate only if grants are exogenous to expenditures. That is, if the causal relationship runs one way, from grants to spending. It is inappropriate if grants are endogenous, that is if the causation between grants and spending is reciprocal. It is this latter situation which obtains for the open matching grants included in these studies. For example, the allocation of the 'rate deficiency grant' tested by Boaden depended on the rate poundage levied by each authority. By setting a higher rate an authority could attract extra grant. In this context, the grant coefficient contains not only the influence of grants on spending, but also the influence of spending on grants. If both effects are positive, as in the case of most matching grants, then the coefficient will be biased upwards.

The third methodological problem is that all but two of the studies use historically determined measures of grants and local policies.(29) Ostensibly, the statistical relationship between expenditure levels and grant levels shows the contemporary responsiveness of local fiscal policies to central grants. However, the level of expenditure is an invalid operationalisation of the concept of local policy and the level of grant is an inaccurate indicator of the impact of the current grant system.

The level of expenditure by a local authority is the product of responses to constraints and opportunities over many years. It is not a measure of current 'policy' in the sense of a decision between various courses of action or inaction. Rather, local expenditure decisions focus on adjustments to the existing base, which are typically marginal or 'incremental'(30). Therefore, the appropriate measure of responsiveness to grants is local expenditure change over time.

The level of grant allocated by central government also contains considerable historical influences. The distribution of grants between authorities changes very slowly, partly because of a conventional concern to protect local authorities from sudden swings in grant. When the grant system has been overhauled (as in 1966, 1974 and 1981) stability has been sought through 'safety nets' and other transitional arrangements. Thus, although the type of grant may change markedly the level of grant may change little.(31) In this context the apparent relationship between current grants and spending levels may be dominated by the characteristics of the previous grant system. Therefore, to detect the effect of the contemporary grant system it is necessary to measure the change in grants.

Thus previous empirical studies have produced no evidence on grant hypotheses II, III and VI; and no satisfactory evidence on grant hypotheses I, IV and V. The principal questions posed by political and economic theories of grant impact therefore remain largely unanswered in the context of U.K. local government.

III A MODEL OF GRANT IMPACT

This section specifies a statistical model which will be used to estimate the impact of central grants on local expenditure change. The model includes not only grants but also measures of party politics, service needs and tax base resources. The measurement of the explanatory variables and their hypothetical effects on spending are discussed below. The full model and the method of estimation are then summarised and the context of the empirical analysis is outlined.

(a) Grants

Since 1981 local authorities in England have received three types of grant from central government: block grant, domestic rate relief grant and specific grants.(32)

Block grant comprises around 75% of total grant funding. It is a general equalisation grant which is intended to compensate for variations in local needs and resources. The change in block grant receipts (ΔBG) from one year to the next is largely determined by circumstances beyond the control of individual local authorities. The most important influences on ΔBG are central government decisions on the size of the block grant pool and its distribution between the various groups of authorities. Within these constraints, ΔBG for an individual authority is further influenced by the change in local service needs and tax

base resources. These variables are also beyond local authority influence in the short term.(33) Central government estimates the level of service needs through the 'Grant Related Expenditure Assessment'.(34) Tax base resources are measured by the total rateable value of properties in the local area, which is also assessed by central government.

Thus BG is largely a lump-sum grant which is exogenous to local decisions on expenditure change (ΔEX). However, ΔBG is also influenced by ΔEX to some extent. Additional expenditure up to a limit set by central government attracts more grant. Expenditure beyond this limit attracts grant at a declining rate which may eventually become negative. This characteristic of block grant distribution implies that the relationship between ΔBG and ΔEX contains an element of simultaneity. Therefore, it is necessary to create a proxy for ΔBG to remove the potential impact of simultaneity bias from estimates of its effect on ΔEX. A modified measure of ΔBG can be created through the following equations:

$$BG_{it} = f(ND_{it}, TB_{it}, BG_{it-1}) \qquad \text{Equn. I.}$$

$$M\Delta BG_{it} = EBG_{it} - BG_{it-1} \qquad \text{Equn. II.}$$

where i denotes an individual local authority, t and t-1 refer

to the current and previous financial years respectively and the variables are defined as follows:(35)

BG is the level of block grant
TB is the size of the local tax base, measured by total rateable value.
ND is the level of service needs, measured by the Grant Related Expenditure Assessment.
EBG is the estimate of BG obtained from Equation I.
MΔBG is the modified measure of ΔBG obtained from Equation II.

This procedure provides a proxy for ΔBG which is freed of the influence of ΔEX. The variable MΔBG is a measure of the change in an exogenous lump-sum grant.

Domestic rate relief grants comprise around 5% of local authority grant income. This grant compensates local authorities for the statutory requirement to levy a lower rate poundage on private households than on businesses. The size of the grant in each area depends on the rateable value of domestic properties. The change in this grant (ΔDG) from one year to the next is determined by the change in domestic rateable value, largely as a result of new housing developments. Thus, for an area as a whole, ΔDG is a lump-sum grant which is exogenous to local spending decisions. However, the distribution of ΔDG

between the upper and lower tier local authorities in the same area depends on the relative change in their respective rate poundages. If one tier increases its rate poundage by more than the other then it will receive a bigger share of the grant. This aspect of the distribution of ΔDG implies that the relationship between ΔDG and ΔEX is partly simultaneous. To deal with this problem a proxy for ΔDG can be created as follows:

$$M\Delta DG_{it} = (DG_{it-1}/100) \cdot PDG_{it} \qquad \text{Equn. III.}$$

where,
DG is the level of domestic rate relief grant.
PDG is the percentage change in DG for the area as a whole.
MΔDG is the modified measure of ΔDG.

This procedure yields a proxy for ΔDG which is freed of the influence of ΔEX. The variable MΔDG is a measure of the change in an exogenous lump-sum grant. The common characteristics of ΔMBG and ΔMDG enable them to be added to form a single measure of the change in general grant revenue, ΔGG.

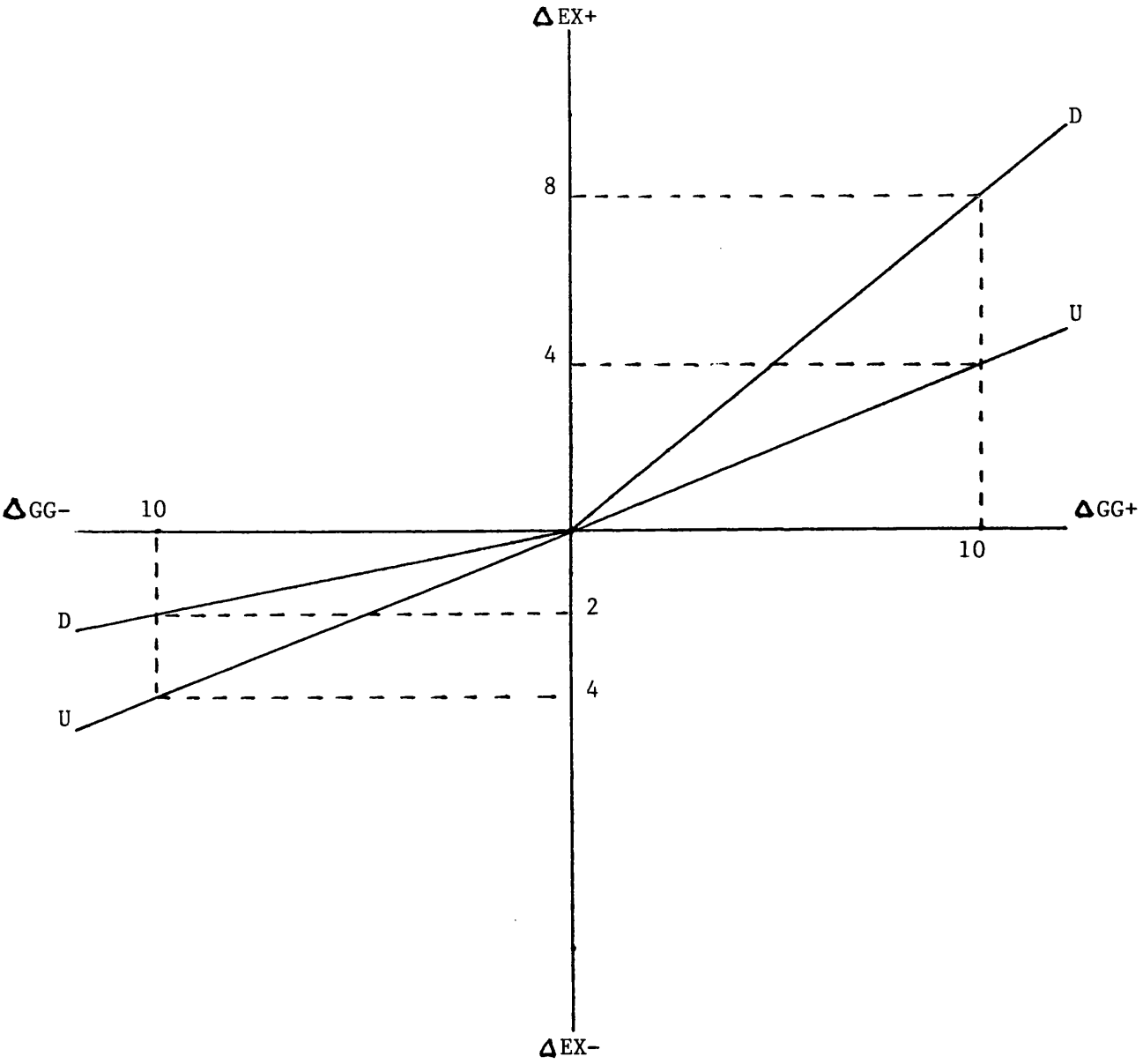
The final component of grant funding is specific grants. Unlike BG and DG these grants are allocated for particular services. Specific grants cover a fixed proportion of spending up to a

centrally specified level. Beyond this level the whole cost of further spending falls on local tax revenues. The limit imposed by central government means that the change in specific grants (ΔSG) from one year to the next is beyond local authority control. Whereas open matching grants are endogenous to local spending, closed matching grants such as ΔSG are exogenous.(36)

The variables ΔGG and ΔSG can be used to test the hypotheses that grants are a significant constraint on spending decisions, that lump-sum grants are substitutive and that matching grants are stimulative. Before discussing the procedure for testing the other three grant hypotheses, it is necessary to consider an important complication in the measurement of grant impact.

In most previous studies the focus has been on grant levels and therefore all grant values have been positive. However, changes in grant over time may assume either positive or negative values. In this context, the estimation of a single grant coefficient is appropriate only if the expenditure response is uniform across the range of grant changes. Such a uniform response is illustrated by line U in Diagram II. The same rate of partial substitution is produced whether grants increase or decrease. However, it is possible that the rates of response to positive and negative grant changes differ. Local policy

DIAGRAM II: UNIFORM AND DIFFERENTIAL RESPONSES TO POSITIVE AND NEGATIVE CHANGES IN GRANT



On line U a grant increase of £10 causes a spending increase of £4; and a grant decrease of £10 causes a spending decrease of £4.

On line D a grant increase of £10 causes a spending increase of £8; and a grant decrease of £10 causes a spending decrease of £2.

makers may be more willing to increase spending when grants rise than to reduce spending when grants fall.(37) Such a differential response is shown by line D in Diagram II. In this example the impact of a positive grant change is a low rate of substitution: most of the extra grant is spent and little is used to cut local taxes. By contrast the impact of a negative grant change is a high rate of substitution: most of the grant cut is replaced by local tax revenue and the cut in spending is small. In this context, it would be necessary to estimate separate coefficients for the impact of positive and negative changes in lump-sum grants. A similar procedure might also be required to measure the impact of matching grants.

(b) The Mediation Of Grant Impact by Local Financial Conditions

To test grant hypotheses HII and HIII it is necessary to measure the level of prior grant funding and the cost to ratepayers of replacing grant revenues. It is also necessary to specify how these variables interact with changes in grant.

The measurement of prior grant funding is straightforward. This variable, GRFX, is simply the percentage of total net spending which was funded by grants in the previous financial year. If hypothesis HII is valid then compliance with central policies should increase with GRFX. Therefore, to test the role of GRFX

in facilitating such central 'control' it is necessary to identify the local behaviour which the centre desires.(38)

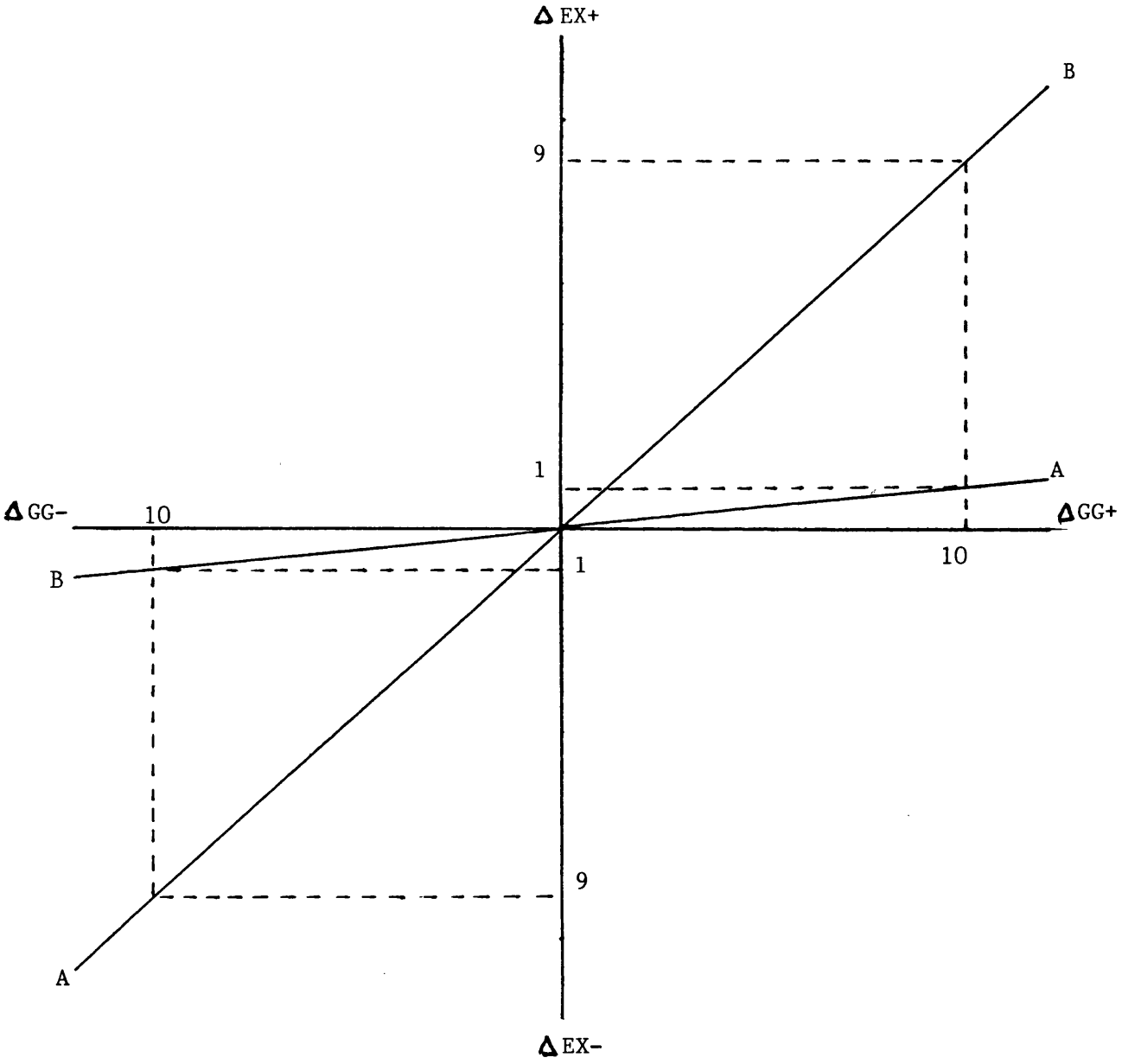
The aims of central policies towards local government finance in the 1980's have been to reduce spending and restrain rates. Thus the preferred impact of grant cuts is no substitution and the preferred impact of grant increases is complete substitution. If local compliance with central policies is influenced by GRFX, then the relationship between ΔGG and ΔEX should resemble the pattern in Diagram III. A given grant cut will produce a greater spending cut in a high GRFX authority. Similarly a given grant increase will produce a smaller spending increase in a high GRFX authority.

An interaction term which reflects this pattern of central preferences can now be specified. In this variable, COMPLY, the size of a grant cut is magnified by GRFX and the size of a grant increase is deflated by GRFX:

$$COMPLY_{it} = \Delta GG_{it} \cdot GRFX^*_{it-1} \qquad \text{Equn. IV.}$$

where GRFX* is equal to 1/GRFX if ΔGG is positive, and equal to GRFX if ΔGG is negative.(39) If hypothesis HII is valid then the relationship between ΔEX and COMPLY should be closer than the relationship between ΔEX and ΔGG.(40)

DIAGRAM III: THE MEDIATION OF GRANT IMPACT BY PRIOR GRANT FUNDING



Line A represents a high GRFX authority and line B represents a low GRFX authority

To test grant hypothesis HIII it is necessary to operationalise the concept of the gearing effect. The first step is simply to calculate RATE, which is the percentage rate change required to compensate for a change in grants. The gearing effect has usually been discussed in the context of grant cuts but it is also relevant to grant increases. If a substantial rate cut is permitted by extra grant then it is less likely to be used to boost spending.(41) The logic of the interaction between RATE and ΔGG is similar to the logic of COMPLY. In the interaction term, GEAR, the size of a grant cut is magnified by RATE and the size of a grant increase is deflated by RATE. Thus,

$$GEAR_{it} = \Delta GG_{it} \cdot RATE^*_{it} \qquad \text{Equn. V.}$$

where RATE* is equal to 1/ RATE if ΔGG is positive and RATE if ΔGG is negative. If hypothesis HIII is valid then the relationship between GEAR and ΔEX should be closer than the relationship between ΔGG and ΔEX.

(c) Party Politics

Expenditure decisions may be influenced by local party politics simply because parties differ in their views about the costs and benefits of higher spending and lower taxes. Party policies may

be underpinned by ideological dispositions, by a pragmatic need to appeal to specific segments of the electorate or by the control of policy formulation by activists.(42) Any of these constraints may prevent parties converging towards the position of the median voter.(43) In this case distinctive policy priorities will be reflected in distinctive patterns of policy change. Analyses of local policy variation have usually estimated only the additive effect of party politics on local policies. However, it is increasingly recognised that the role of politics may also be mediative,(44) as suggested by grant hypothesis HVI.

Most output studies in the U.K. have found that party politics is an important influence on local policy variation. More specifically, the evidence indicates that the Labour party's share of council seats is positively related to the level of spending. However, it has been argued that the measurement of party politics in these studies is problematic for two reasons.(45) First, the capacity to shape policy outputs depends on outright control of the council. Therefore the formal power of parties should be measured not by the proportion of seats held, but by a dichotomous variable which indicates the presence or absence of control. A second problem is that the focus on the power of the Labour party alone is too limited. This problem can be alleviated by comparing the results for

models which are identical but for the replacement of Labour control by Conservative control.(46) However, this approach may still underestimate the impact of the overall pattern of party politics. The use of a dummy variable for either Labour or Conservative control implies an unnecessary loss of information. For example, if Labour control is coded 1 then Conservative councils and all other councils are grouped together and coded 0. More information on the pattern of party control can be retained if a trichotomous variable is used. Therefore, the first measure of party politics used in this analysis, PARTY, is coded 1 for Conservative control, 2 for councils controlled by Liberals/SDP and councils in which none of the national parties has outright control, and 3 for Labour control.

Spending decisions may be influenced not only by current party control but also by recent changes in party control. The impact on spending may be particularly pronounced when either Labour or the Conservatives gain majority status. The change in party control, CHPC, can be measured on a 3 point scale where 1 indicates change to a Labour majority, 0 indicates no change and - 1 indicates change to a Conservative majority. Bunce has shown that the impact of political change in USA state governments is greatest in the first budget of a new administration.(47) However, Sharpe and Newton have argued

that the full effect of a change in party control may take some time.(48) This suggests that CHPC should be measured over several years but that more recent changes should be weighted more heavily. The most appropriate time span for measuring the change in control in U.K. local government may be the four year electoral cycle. Thus the weighted change in party control, WCHPC, can be calculated as:

$$WCHPC_{it} = CHPC_{it} + CHPC_{it-1}/2 + CHPC_{it-2}/3 + CHPC_{it-3}/4 \qquad \text{Equn. VI.}$$

The logic of the interaction between the measures of party politics and grants is similar to the logic of COMPLY and GEAR.(49) For example, an increase in ΔGG is magnified by PARTY and a decrease in ΔGG is deflated by PARTY:

$$PARTYGG_{it} = \Delta GG_{it} \cdot PARTY^*_{it-1} \qquad \text{Equn. VII.}$$

Where PARTY* is equal to 1/PARTY if ΔGG is negative, and equal to PARTY if ΔGG is positive. Similar interaction terms can also be created for ΔSG and for WCHPC.

(d) Needs and Tax Base

A major formal purpose of local authorities is to respond to the service needs of the local population. It may therefore be expected that the change in service needs will influence spending decisions. The conceptual and practical problems of measuring spatial variations in the need for public services have been widely analysed.(50) The principal conceptual problem is that the definition of need is inescapably ideological. Thus variations in the perceived level of need depend not only on 'objective' local conditions but also on local politics. However, it is possible to compare needs across authorities because some features of the process of defining need are common to all areas. These include a national political culture, the shared values of professional staff and the statutory obligations which limit local discretion.

The principal practical problem of need measurement is the difficulty of obtaining data which is specific to local authority services and available on an annual basis. Most output studies in the U.K. have used general socio-economic indicators from the 10 yearly census to measure need. The only measure of need which is constructed specially for local authority services and recalculated annually is central government's Grant Related Expenditure Assessment. Therefore, the annual change in this variable is used to operationalise

the concept of the change in service needs, ΔND.

It has been argued that an important constraint on local authorities' capacity to meet service needs is the lack of buoyancy in the local tax base.(51) Increases in local rateable values persistently lag behind the rate of inflation, and annual increases in local tax levels are necessary simply to maintain the real value of rate revenue. However, not all areas are afflicted by this problem to the same extent. Therefore it may be hypothesised that there is a negative relationship between ΔEX and COST, the percentage rate increase required to maintain real local tax revenue. Spending decisions may be influenced not only by the value of the local tax base but also by the balance between domestic and business properties. If local authorities receive most of their rate revenue from businesses then the cost of extra spending can be shifted onto business ratepayers within the area.(52) Ultimately such costs may be shifted out of the local area onto the final consumers of goods and services.(53) Therefore, the proportion of the local tax base which consists of business properties, SHIFT, should be positively related to ΔEX.

(e) Summary of The Model

The impact of the explanatory variables on local expenditure

change can be estimated through the following general regression model:

$$\Delta EX_{it} = a + b_1\Delta GG_{it} + b_2\Delta SG_{it} + b_3PARTY_{it-1} + b_4WCHPCit-1 + b_5\Delta ND_{it} + b_6COST_{it} + b_7SHIFT_{it-1} + e_{it}$$

Equn. VIII.

where the variables are defined as above,(54) a is a constant, e is a random error term and the b's are the regression coefficients for the explanatory variables. The variables PARTY, WCHPC and SHIFT are lagged one year on ΔEX. It is their value when the budget is being set rather than spent which is relevant in this context. The other variables are measured in the same time period as ΔEX. The expected signs on the estimated coefficients are:

$b_1 > 0 < 1$

$b_2 > 1$

$b_6 < 0$

$b_3, b_4, b_5, b_7 > 0.$

Various modifications to Equn. VIII provide for a test of

different slopes for positive and negative changes in grants; and for tests of whether grant impact is mediated by prior grant funding, the gearing effect and local politics. The method of estimation is two-stage least squares employing the measure of ΔGG derived from equations I to III.

The model is tested on the spending decisions of English local authorities in five financial years, from 1982/3 to 1986/7.(55) The model is applied to the cumulative change in real expenditure over the five years because the primary focus of the analysis is on the impact of grants.(56) It is inappropriate to estimate the impact of grants in single financial years during this period because expenditure responses to grant change were spread over several years.(57) For example, in a particular year the impact of grants may be obscured by running down balances or by building up special accounts for use in subsequent years of more severe financial pressure.(58) However, over a longer period all net expenditure must ultimately be covered by rate and grant income.

It has been argued that analyses of local policy variation in the U.K. have focused too heavily on urban areas and neglected rural areas in general and county councils in particular.(59) Therefore, the validity of the model is evaluated for three groups of local authorities. These are the 68 'urban'

authorities in England (the London Boroughs and Metropolitan Districts) and two groups of 'rural' authorities: the 39 non-metropolitan counties and the 296 non-metropolitan districts.

IV EMPIRICAL EVIDENCE

The evidence on the validity of the model of grant impact is presented in Tables II-IV. Model A shows the results for the estimation of equation VIII. The evidence provided by various modifications to equation VIII is shown in models B to G.

The overall level of statistical explanation compares favourably with other analyses of local policy change.(60) In general the variables ΔGG and ΔSG contribute significantly to the explanatory power of the model. Thus the evidence supports Strousse and Jones' argument that output studies which omit grants are likely to underestimate the constraints on local political choice.(61) Not only are ΔGG and ΔSG significant, but their effects are also significantly different. When ΔGG and ΔSG are constrained to have equal coefficients a marked reduction in the R^2 occurs in each group of authorities.(62) Therefore grant impact has probably been understated in studies which measured only one type of grant or used a single measure of 'total' grants.

(a) Lump-Sum Grants

The hypothesis that the impact of lump-sum grants is partial substitution is supported by the results for the non-metropolitan districts and counties. The coefficients for ΔGG in model A are significantly greater than zero and significantly less than one.(63) The evidence indicates that a £1 grant cut produced a

TABLE III: TSLS REGRESSION RESULTS, NON-METROPOLITAN DISTRICTS

	A	B	C	D	E	F	G
R^2	0.45***	0.46***	0.45***	0.43***	0.46***	0.47***	0.43***
$\bar{R}^2$	0.44	0.45	0.44	0.41	0.44	0.46	0.42
F	33.1	30.3	29.5	26.7	30.0	29.3	29.3
S.E.R.	7.36	7.29	7.33	7.53	7.31	7.23	7.48
ΔGG	0.32*** (0.08)						0.32*** (0.08)
ΔGG↑		0.77*** (0.17)					
ΔGG↓		0.24** (0.09)					
COMPLY↑			45.96** (14.17)				
COMPLY↓			0.003* (0.001)				
GEAR↑				497.31 (277.05)			
GEAR↓				0.003 (0.002)			
ΔSG	1.15*** (0.11)	1.12*** (0.11)	1.16*** (0.11)	1.17*** (0.11)	1.11*** (0.11)	1.11*** (0.11)	
PARTY	0.25+ (0.14)	0.23+ (0.14)	0.22 (0.15)	0.14 (0.15)	-0.07 (0.15)	0.23+ (0.14)	0.30 (0.23)
WCHPC	1.27+ (0.72)	1.30+ (0.72)	1.31+ (0.72)	1.38+ (0.74)	1.44* (0.72)	-0.49 (0.86)	1.12 (0.74)
CHND	0.18* (0.08)	0.15+ (0.08)	0.18* (0.07)	0.29*** (0.07)	0.16* (0.07)	0.14* (0.17)	0.16* (0.08)
COST	-0.08* (0.05)	-0.07 (0.05)	-0.06 (0.05)	-0.05 (0.05)	-0.07 (0.05)	-0.07 (0.05)	-0.08* (0.05)
SHIFT	-0.03* (0.01)	-0.03* (0.01)	-0.03** (0.01)	-0.03* (0.01)	-0.03* (0.01)	-0.03* (0.01)	-0.02* (0.01)
PARTYGG↑					0.47*** (0.13)		
PARTYGG↓					0.34** (0.12)		
WCHPCGG↑						0.87*** (0.23)	
WCHPCGG↓						0.23*** (0.07)	
PARTYSG							0.50*** (0.05)
Constant	3.19 (3.11)	2.90 (3.1)	3.07 (3.1)	1.15 (3.1)	2.09 (3.0)	2.35 (3.0)	2.95 (3.2)

TABLE III: TSLS REGRESSION RESULTS, NON-METROPOLITAN DISTRICTS

	A	B	C	D	E	F	G
R^2	0.45***	0.46***	0.45***	0.43***	0.46***	0.47***	0.43***
$\bar{R}^2$	0.44	0.45	0.44	0.41	0.44	0.46	0.42
F	33.1	30.3	29.5	26.7	30.0	29.3	29.3
S.E.R.	7.36	7.29	7.33	7.53	7.31	7.23	7.48
GG	0.32*** (0.08)						0.32*** (0.08)
GG↑		0.77*** (0.17)					
GG↓		0.24** (0.09)					
COMPLY↑			45.96** (14.17)				
COMPLY↓			0.003* (0.001)				
YEAR↑				497.31 (277.05)			
YEAR↓				0.003 (0.002)			
SG	1.15*** (0.11)	1.12*** (0.11)	1.16*** (0.11)	1.17*** (0.11)	1.11*** (0.11)	1.11*** (0.11)	
PARTY	0.25+ (0.14)	0.23+ (0.14)	0.22 (0.15)	0.14 (0.15)	-0.07 (0.15)	0.23+ (0.14)	0.30 (0.23)
PCHPC	1.27+ (0.72)	1.30+ (0.72)	1.31+ (0.72)	1.38+ (0.74)	1.44* (0.72)	-0.49 (0.86)	1.12 (0.74)
PHND	0.18* (0.08)	0.15+ (0.08)	0.18* (0.07)	0.29*** (0.07)	0.16* (0.07)	0.14* (0.17)	0.16* (0.08)
POST	-0.08* (0.05)	-0.07 (0.05)	-0.06 (0.05)	-0.05 (0.05)	-0.07 (0.05)	-0.07 (0.05)	-0.08* (0.05)
PHIFT	-0.03* (0.01)	-0.03* (0.01)	-0.03** (0.01)	-0.03* (0.01)	-0.03* (0.01)	-0.03* (0.01)	-0.02* (0.01)
PARTYGG↑					0.47*** (0.13)		
PARTYGG↓					0.34** (0.12)		
PCHPCGG↑						0.87*** (0.23)	
PCHPCGG↓						0.23*** (0.07)	
PARTYSG							0.50*** (0.05)
Constant	3.19 (3.11)	2.90 (3.1)	3.07 (3.1)	1.15 (3.1)	2.09 (3.0)	2.35 (3.0)	2.95 (3.2)

TABLE IV: TSLS REGRESSION RESULTS, NON-METROPOLITAN COUNTIES

	A	C	D	E	F	G
R^2	0.78***	0.79***	0.79***	0.77***	0.79***	0.58***
$\bar{R}^2$	0.73	0.74	0.75	0.72	0.74	0.48
F	15.5	15.9	16.5	14.5	16.22	5.9
S.E.R.	11.72	11.62	11.46	12.0	11.53	16.33
ΔGG	0.28+					0.39+
	(0.15)					(0.21)
COMPLY		0.007*				
		(0.003)				
GEAR			0.006*			
			(0.003)			
ΔSG	2.48***	2.35***	2.29***	2.49***	2.56***	
	(0.38)	(0.39)	(0.38)	(0.39)	(0.38)	
PARTY	1.10	1.71*	1.67*	-0.16	1.59*	0.54
	(0.75)	(0.83)	(0.80)	(1.11)	(0.78)	(1.05)
WCHPC	4.90*	4.91*	3.55	5.39*	-3.35	3.29
	(2.31)	(2.29)	(2.30)	(2.43)	(4.33)	(3.23)
CHND	0.07	0.06	0.05	0.16	0.11	0.21
	(0.23)	(0.22)	(0.22)	(0.22)	(0.21)	(0.35)
COST	-3.64*	-3.99**	-3.83**	-3.74*	-4.27**	-2.15
	(1.41)	(1.40)	(1.37)	(1.44)	(1.40)	(2.16)
SHIFT	0.08	0.13	0.12	0.0006	0.03	0.11
	(0.14)	(0.15)	(0.14)	(0.14)	(0.13)	(0.22)
PARTYGG				0.27		
				(0.20)		
WCHPCGG					0.17*	
					(0.08)	
PARTYSG						1.41*
						(0.53)
Constant	76.87	81.20	68.79	86.23	96.18	39.72
	(49.1)	(48.30)	(48.4)	(49.9)	(47.8)	(80.1)

spending cut of around £0.30, or that a £1 grant increase produced a spending increase of around £0.30.

In the urban authorities the hypothesised impact of lump-sum grants is not supported by the results. The ΔGG coefficient in model A is not significantly different from zero. This indicates that the impact of ΔGG on ΔEX is not partial but complete substitution. Thus spending decisions in this group of authorities were not constrained by changes in lump-sum grants. The evidence suggests that local policy makers treated general grants and rate revenue as perfectly interchangeable sources of income. This implies that grants simply served as one source of funding for spending decisions which were determined by other variables.

During the study period the cumulative change in general grants was negative in all the non-metropolitan counties. However, ΔGG was positive in around 15% of the non-metropolitan districts and urban authorities. Therefore, in these two groups model B was estimated to examine whether there was a differential response to positive and negative grant changes. The results show that in the non-metropolitan districts the response to grant increases (ΔGG↑) and decreases (ΔGG↓) were significantly different.(64) The impact of a £1 increase in general grants is a spending increase of around £0.77, but the impact of a £1 cut in general grants is a spending cut of only £0.24. Thus there is little substitution when grants increase - most of the extra money is

used to boost spending. However, there is a high rate of substitution when grants decrease - much of the grant loss is replaced by rate revenue. This implies that grant increases may 'stick where they hit' but that grant decreases are much less likely to adhere to local budgets. The evidence provided by model B in the urban authorities is also indicative of a differential response to positive and negative grant changes. The difference between the $\Delta GG\uparrow$ and $\Delta GG\downarrow$ coefficients is not statistically significant.(65) However, the pattern of the evidence does hint that there is less substitution when grants increase.

The results when ΔGG is replaced by COMPLY are shown in model C.(66) The level of statistical explanation is not improved significantly in any of the three groups of authorities. Thus the evidence indicates that the impact of ΔGG on ΔEX is not mediated by GRFX. Local spending decisions are not more 'accountable' to central government where the prior level of grant funding is high. Greater grant 'dependence' does not produce greater compliance with central policies.(67) The evidence shows that high GRFX authorities were just as likely as low GRFX authorities to increase rates to compensate for grant cuts, and just as likely to use extra grants to boost spending.

The effects of replacing ΔGG by GEAR are shown in model D. The modified model does not provide a significantly improved level of statistical explanation.(68) Thus the impact of ΔGG on ΔEX is

not mediated by the cost or saving to ratepayers.(69) The results indicate that the supposed gearing effect remains resolutely in neutral. Despite the absence of evidence on its validity, the gearing effect has become a "fairly well accepted feature" of local government finance in the UK.(70) This first empirical test of the gearing effect suggests that it does not merit this status.

The evidence provides very limited support for the hypothesis that the effects of lump-sum grants are mediated by party politics. Model E shows the consequences when ΔGG is replaced by PARTYGG. There is no significant improvement in the results.(71) Model F shows the results when ΔGG is mediated by WCHPC. There is very little change in the level of statistical explanation in the urban authorities and non-metropolitan counties. However, in the non-metropolitan districts there is a small but significant improvement in the results.(72) Thus the evidence indicates that in this group of authorities the impact of ΔGG on ΔEX is modified by recent changes in party control. Nevertheless, the overall pattern of the evidence suggests that party politics makes little difference to the relationship between lump-sum grants and spending decisions.

(b) Matching Grants

The hypothesised stimulative effect of matching grants is generally supported by the statistical evidence.

In the non-metropolitan districts and counties the estimated coefficients for ΔSG are significantly greater than one.(73) All the non-metropolitan districts received a cumulative increase in the real value of specific grants between 1981/2 and 1986/7. Thus in this group the ΔSG coefficient indicates that all additional specific grants were spent, and that expenditure funded by local taxes also increased. This need not imply that all the increase in spending was on services formally designated for specific grant support. It may be that some of the specific grants leaked to other parts of the budget.(74) Nor does the evidence necessarily imply that the formal matching requirements were met in full. Precise data on the value and matching rate of each specific grant received by each authority would be required to investigate this issue.

Around one third of the non-metropolitan counties suffered a cumulative decline in the real value of specific grants during the study period. However, the response to positive and negative values of ΔSG was uniform.(75) Thus the ΔSG coefficient in this group of authorities indicates not only that an increase in specific grants stimulated spending, but also that a decline in specific grants released funds for tax cuts.

The hypothesised impact of matching grants is not supported by the results for the urban authorities. The estimated coefficient for ΔSG in model A is not significantly different from one,(76) which indicates that the effect of matching grants is no substitution. Between 1981/2 and 1986/7 the urban authorities suffered a cumulative decline in the real value of specific grants. Thus the ΔSG coefficient suggests that a £1 cut in specific grants produced £1 cut in spending but produced no reduction in local taxes. In the 1980's the level of fiscal stress has been higher in urban areas than in the remainder of England.(77) Therefore, the urban authorities may have retained the funds released by reduced matching requirements and transferred the money to other services.

The mediation of specific grants by PARTY is examined in model G. The evidence indicates that the impact of ΔSG on ΔEX is not significantly mediated by party control. The level of statistical explanation was no better when ΔSG was mediated by WCHPC. It may be that the formal conditions attached to specific grants effectively prevent any party political influence on their relationship with spending. The absence of grant mediation by party politics does not mean that grants are unmediated by any aspect of local political systems. For example, it may be that local bureaucrats influence the relationship between grants and spending. However the results are not consistent with

'budget-maximisation' which implies that all grants are allocated to spending and that lump-sum and matching grants have the same effect.(78)

(c) Party Politics

Most of the evidence on the independent impact of the political variables is consistent with their hypothesised relationship with spending. The estimated coefficients for PARTY are consistently positive, and are significant in the model which provides the best explanation of variations in ΔEX in each group of authorities. Spending decisions are influenced not only by current party control but also by recent changes in party control. In the non-metropolitan districts and counties the WCHPC coefficients are significantly positive. This evidence indicates that new Labour councils are especially likely to increase spending and that new Conservative councils are especially likely to cut spending. In the urban authorities the coefficient for WCHPC is not significant. This indicates that new councils in these areas tended to conform to the spending policies of established councils of the same party colour.

Thus the impact of party politics is largely additive rather than mediative. While there is little evidence that party control mediates grant impact, there is substantial evidence that party

control has a significant independent effect on spending decisions. In the context of local expenditure growth and decline, party politics does matter.

(d) Needs and Tax Base

The evidence generally supports the hypothesis that the impact of service needs on spending is positive. However the ΔND coefficients are significant only in the urban authorities and non-metropolitan districts. The difference in the magnitude of the ΔND coefficients between these two groups may reflect different statutory constraints on the services for which they are responsible. In the non-metropolitan counties the impact of ΔND on ΔEX is not significant. It should not necessarily be inferred that expenditure decisions in these authorities are unresponsive to service needs. The results may simply reflect a lack of correspondence between central and local perceptions of changes in the level of need.

The evidence indicates that the lack of buoyancy in the local tax base is a constraint on local expenditure growth. The impact of COST on ΔEX is significantly negative, especially in the urban authorities and non-metropolitan counties. By contrast, none of the estimated coefficients for SHIFT support the hypothesis that the business proportion of the tax base is positively related to

expenditure change. In the non-metropolitan counties SHIFT has no significant influence on ΔEX. In the other two groups of authorities the effect of SHIFT is the opposite of that hypothesised. The significantly negative coefficients indicate that spending change was lower in areas where businesses provided the bulk of local tax revenue. This pattern may be explained by the sensitivity of councils to local economic problems in the 1980's.(79)

(e) Summary

The statistical results are consistent with three of the six grant hypotheses specified in Part I. The general pattern of the evidence indicates that variations in grants are significantly related to variations in spending (HI), that the impact of lump-sum grants is partial substitution (HIV), and that the impact of matching grants is stimulation (HV). By contrast, grant impact is not mediated by the prior level of grant funding (HII) or by the gearing effect (HIII). Nor is there much evidence that grant impact is mediated by party politics (HVI).

Thus the results support some aspects of both political and economic theories of grant effects. However, a caveat must be entered on the validity of each theoretical perspective. First, recent changes in political models of central-local relations may

have overemphasised central constraints on local policies. Central grants do not 'dominate' local spending decisions. Variations in expenditure change are far from completely determined by variations in grants. Party politics, service needs and the local tax base also have important effects on spending. It would be necessary to examine the evidence over a much longer time period to identify whether grant constraints have been particularly strong since 1981. However, the results of this analysis suggest that it is misleading to characterise local authorities as the 'agents' of the centre. The caveat concerning the economic perspective on grants is that the expected income and price effects were not present in all three groups of authorities. The impact of lump-sum and matching grants was weaker in the urban areas than in the two groups of non-metropolitan councils. The variable pattern of the results lends support to the argument that it is important to test the validity of models of policy variation on several types of authorities.

CONCLUSION

The aim of this paper was to identify the impact of central grants on local spending decisions. Many previous analyses of local policy variation either omitted grants entirely or simply fired grant variables at policy variables on an ad-hoc basis. In this analysis the relationship between grants and spending was tested on the basis of political and economic theories of grant effects. The estimates of grant impact produced by previous studies were afflicted by several methodological problems. Therefore in this analysis the influence of grant change on spending change was estimated while controlling for other variables and correcting for simultaneity bias. The empirical evidence indicated that central grants are a significant constraint on expenditure decisions and that different types of grants have different effects.

In sum, studies which omit appropriate measures of grant impact cannot provide valid explanations of local policy variation. Central grants are an important political influence on policy outputs. Thus answers to the question 'does politics matter?' should be sought in the characteristics of both local and national political systems.

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24. The exceptions are Bennett, Central Grants To Local Governments; Foster et al., Local Government Finance In A Unitary State

25. These coefficients correspond directly to the slopes of the various lines shown in Diagram I.

26. A positive relationship between grants and local tax levels indicates stimulation, an insignificant relationship indicates no substitution and a significant negative relationship indicates partial or complete substitution. The only studies which employ standardised coefficients but do not analyse rate poundages as well as spending are Sharpe and Newton, Does Politics Matter?; Greenwood, 'Fiscal Pressure and Local Government In England and Wales'

27. Compare, for example, the results of Oliver and Stanyer with those of Danziger for total grants; or the results of Jackman and Sellars with those of Bennett for lump-sum grants

28. G.A. Boyne 'Local Tax Equalisation In England: An Empirical Analysis' Government and Policy, forthcoming

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31. For example despite the fundamental reform of the grant system in 1981, the correlations between grants per capita in 1980 and 1981 were: 0.81 in the inner London boroughs, 0.94 in the outer London boroughs, 0.95 in the Metropolitan Districts, 0.83 in the non-metropolitan districts and 0.99 in the non-metropolitan counties

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39. A similar analysis for ΔSG is not possible. The preferred central response to ΔSG cannot be identified without data on the value and matching rates of all authorities' specific grants. This data restriction also prevents the examination of the gearing effect in the context of ΔSG.

40. If the response to positive and negative grant changes is significantly different then it will also be necessary to estimate separate slopes for positive and negative values of COMPLY. The same argument applies to the mediation of grant impact by the gearing effect and by local politics

41. In Diagram III, when ΔGG is positive line A would represent the response of an authority where the rate saving is high and line B the response when the rate saving is low. Similarly, when ΔGG is negative, line A represents the case when the rate cost is high and line B the case when the rate cost is low

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50. G.A. Boyne and M.A. Powell, 'Territorial Justice and Social Policy: A Review Of Theory and Evidence', Policy and Politics, forthcoming

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55. 1982/3 is the first year of spending changes under the new grant system introduced in 1981. 1986/7 is the last year for which a near complete data set is available for the financial variables. In 1988/7

there were substantial gaps in the CIPFA data, particularly for the urban authorities

56. The cumulative change is $EX_t + EX_{t-1} \ldots + EX_{t-n}$, with each year's spending converted to 1986 prices. The same procedure is applied to ΔGG, ΔSG, ΔND and COST. PARTY and WCHPC were summed over the 5 years and SHIFT was averaged

57. P. Smith, 'Optimal Local Authority Budgeting Strategies Under Block Grant', **Applied Economics**, 19, (1987), 891-905. The manner and spread of the response to grant changes varied widely across authorities. Therefore it is appropriate to analyse the cumulative change in spending rather than the impact of the distributive lagged value of grants on annual expenditure decisions

58. Elcock and Jordan, **Learning from Local Authority Budgeting**.

59. Sharpe and Newton, **Does Politics Matter**?; P. McKeown, 'County Councils and Economic Development In The Early 1980's' **Local Government Studies**, 13, (1987) No. 6, 37-49.

60. R^2's for models of policy change are typically 30-40%. See Boyne, 'Theory, Methodology and Results in Political Science: The Case Of Output Studies'

It has been argued that a focus on total expenditure produces inflated R^2's because grants are included on both sides of the equation. According to this argument the dependent variable should be specified as 'own-source' spending, that is, total expenditure minus grants. See E. Morss, 'Some Thoughts On The Determinants of State And Local Expenditures'. **National Tax Journal**, 19, (1966), 95-103. However, it seems more appropriate to view local authorities as selecting a change in total spending rather than a change in own-source spending per se. Further, the relative size of the R^2's produced by the alternative specifications depends on the relationship between grants and spending. If the predominant impact of grants is complete substitution then the relationship with total spending will be weak but the relationship with own-source spending will be strongly negative. The results tend towards this pattern in the urban authorities and non-metropolitan counties.

Thus when the dependent variable is respecified as change in own-source spending the R^2's rise to 87% and 82% respectively. Similarly, if the predominant impact of grants is no substitution, then the relationship with total spending will be strongly positive but the relationship with own-source spending will be weak. The results tend towards this pattern in the non-metropolitan districts, where the re-specification of the dependant variable as the change in own-source spending produces a fall in the R^2 to 30%. Thus, if the desire were to maximise the R^2 then it would be necessary to identify whether the overall impact of grants is closer to complete substitution or no substitution

61. Strousse and Jones 'Federal Aid: The Forgotten Variable In State Policy Research'

62. The R^2 declines to 73% in the urban authorities, 37% in the non-metropolitan districts and 58% in the non-metropolitan counties. This is a significant decline in each case ($F = 10.7$, 41.3 and 27.3 respectively)

63. The significance tests in the tables show that ΔGG is significantly greater than zero. Separate tests also show that ΔGG is significantly less than one: $t = 12.94$ in the non metropolitan districts and $t = 4.73$ in the counties.

64. The R^2's in models A and B are significantly different ($F = 6.29$). For a discussion of this test see G. Wright 'Linear Models For Evaluating Conditional Relationships', American Journal Of Political Science, 20 (1976), 349-73

65. $F = 2.24$

66. Separate slopes are shown for positive and negative values (COMPLY↑ and COMPLY↓) in the non-metropolitan districts because the coefficients for $\Delta GG\uparrow$ and $\Delta GG\downarrow$ are significantly different. For this reason separate slopes are also shown for positive and negative values of GEAR and PARTYGG

67. The impact of GRFX on local compliance with central expenditure 'targets' was also explored, but was not found to be

significant. Nor was the target variable itself significant when added to the regression model. This is probably because the impact of targets occurs indirectly through ΔBG

68. There is slight but statistically insignificant improvement in the non-metropolitan counties ($F = 1.39$)

69. The impact of RATE per se was also tested but the results were no better

70. Bennett, Central Grants To Local Governments, P5

71. The more conventional approach of adding separate slope dummies to the basic model was also tried. Neither Labour nor Conservative slope dummies improved the results. The mediation of COMPLY and FEAR by party politics was also explored but the results were very similar to those presented

72. $F = 4.38$

73. $t = 1.75$ in the districts and $t = 3.87$ in the counties. The difference between the SG coefficients in the districts and counties probably reflects the different matching requirements of grants allocated to the two tiers of authorities. For example, in the districts 95% of the cost of housing benefits is covered by grants, thereby requiring a matching contribution of around 5p for every £1 of grant. By contrast, in the counties police grants account for 50% of costs, thereby requiring a matching contribution of £1 for every £1 of grant

74. J. Osman, 'The Dual Impact Of Federal Aid On State And Local Government Expenditures', National Tax Journal, 19, (1966), 362-72

75. The R^2 when ΔSG was replaced by separate variables for positive and negative values of ΔSG was unchanged at 0.78. The coefficients for $\Delta SG\uparrow$ and $\Delta SG\downarrow$ were 2.52 and 2.22 respectively

76. $t = 0.11$

77. G.A. Boyne, 'The Extent and Impact Of Local Fiscal Stress', Public Policy and Administration, 3, (1988), 15-26

78. J.H. Beck, 'Budget-Maximising Bureaucracy And The Effects of State Aid On School Expenditures' **Public Finance Quarterly**, 9, (1981) 159-82.

79. V. Hausner, ed., **Critical Issues In Urban Economic Development** (Oxford, Clarendon Press, 1986).

CHAPTER VIII

VIII CONCLUSION

The aim of this research was to measure the impact of political variables on local policy variation. In Chapter II it was argued that public policies cannot be produced in the absence of a political process. Therefore, it is appropriate to explain local policy variation in the context of a general political model. However, this leaves open the question of the significance of particular political variables. The impact of politics was examined empirically in chapters III to VII. In general the evidence suggested that median voters and bureaucrats have little influence on policy outputs. By contrast, the statistical results indicated that the impact of local political parties and central grants is significant.

In this final chapter the implications of the evidence are analysed. It is important to review the overall quality of the evidence before considering its substantive significance. Therefore, the first section of the chapter evaluates the validity of the statistical results. The second and third sections assess the implications of the results for the rational choice and party government models respectively. The

final section considers the broader implications of the statistical evidence for the utility of the output studies approach to the explanation of public policy making.

1. Evaluation Of The Evidence

The criteria used in this section to evaluate the evidence are derived from the same methodological perspective as the empirical analyses in previous chapters. This perspective, which has been described as 'temperate rationalism'[1] or 'sophisticated falsificationism',[2] recognises that no evidence is definitive. Thus hypotheses cannot be conclusively proved or disproved. This reservation applies not only to the 'universal' validity of a hypothesis but also to its validity in particular contexts, for example in a specific set of local authorities at a specific time. However, despite this irredeemable uncertainty, there are criteria which can legitimately be used to judge whether a hypothesis is supported or undermined. The justification for this view is that theories which most closely correspond with the evidence have been found to 'work' better in practice.[3]

The general 'empiricist' criterion of the consistency between theories and evidence is readily applicable to analyses of local policy variation. The criterion translates into the statistical 'significance' of

explanatory variables and the 'goodness of fit' of multivariate models. In chapters III to VII these statistical criteria were used to evaluate various hypothetical explanations of policy outputs, on the assumption that the empirical evidence was valid. The implicit justification for this assumption was that the generation of the evidence followed 'standard procedures' for specifying and testing statistical models. Questions concerning the validity of statistical evidence are seldom raised in published empirical analyses of local policy variation. However, conclusions can properly be drawn on the basis of statistical criteria only when other relevant criteria are met. Therefore, it is necessary to explore three aspects of the empirical tests in more detail. These are the accuracy of the data, the operationalisation of the concepts and the validity of the auxiliary assumption of ceteris paribus proviso.

The importance of analysing these aspects of the evidence is clearly illustrated by the results for median voters and bureaucrats. One interpretation of the results is that the effect of these political variables is 'genuinely' unimportant and that the

hypotheses are invalid. Another interpretation is that the empirical tests were defective. In this case it is the evidence which is invalid and the validity of the hypotheses remains unknown. Lack of support for a hypothesis provides the most obvious cue to question the quality of statistical results. However, it is equally important to evaluate the empirical tests when hypotheses are supported. It is tempting to conclude that the favourable results for grants and parties imply that the tests were satisfactory. However, it is logically incorrect to argue backwards from the results of a test to the validity of the process which produced the evidence.(4) The dangers of such reasoning were highlighted in chapter I where it was shown that defective tests nevertheless appeared to support the hypothesised impact of party politics.

(a) The Accuracy Of The Data

The measurement of all the variables was based on survey data from published sources. It is necessary to check whether the evidence was affected by problems which are generally present in survey data or by the particular applications of the data in the empirical tests.

Three general characteristics of survey data are causes for concern.[5] First, all survey data is subject to random errors produced by problems of interpretation, coding and transcription. Such errors are likely to be particularly pronounced in one-off surveys where the survey process and questions are unfamiliar to participants, and where external checks for response validity are difficult. However, these problems are minimal in the case of the survey data used for the political and policy variables. The surveys are conducted regularly[6] and the format and content are very stable. The regularity of the surveys also permits checks on the validity of year on year changes and facilitates the correction or deletion of implausible responses.[7] A second characteristic of survey data which may impair accuracy arises from sampling problems. These problems may concern either the representativeness of the sample of local authorities, or sampling errors within each authority. However, these problems

are of little relevance to the political and policy variables. Virtually all the data is available for the population of authorities and refers to the aggregate characteristics (e.g. spending) of each local authority. Further, where the data refers to characteristics of individuals or households within each area (e.g. unemployment levels) the surveys cover the population rather than a sample.(8)

A third potential difficulty with survey data is response bias. In general the political and policy variables contain neither the motive nor the opportunity for such bias. Many of the variables are highly 'visible' in the local area, for example the political composition of the council or the rate level. However the accuracy of the data for one of the policy variables is likely to be affected by response bias. It has been argued that in recent years Labour controlled urban authorities deliberately understated their true expenditure in an attempt to minimise grant penalties.(9) Thus the measure of spending change employed in chapter

VII may be systematically biased downwards in Labour controlled London boroughs and metropolitan districts. This data problem may be the reason for the difference in the results between the urban authorities and the two groups of rural authorities. For example, it may explain why in the urban authorities the change in party control was not significant, lump-sum grants were not substitutive and matching grants were not stimulative. A full exploration of this issue would require an analysis of the financial accounts in each authority. However, the extent of recent 'creativity' in local budgetary processes may mean that the detection of the 'true' spending in each area is beyond even the most skilled audit.

In addition to the general problems of survey data, it is necessary to note a specific problem which concerns some of the political and policy variables. While the errors in any one of the data sources are small, a greater degree of error will be produced when two or more data sources are combined. For example, the measurement of

annual policy change implies that errors may have been compounded in the construction of the variables from two surveys. The amount of cumulative error may be greatest in the median voter variable which was derived from 4 discrete measures and the bureaucratic power variable which was derived from 9 discrete measures. At the extreme, there is a danger that the variable which is eventually constructed will contain a level of 'noise' which outweighs the intended 'signal'. However, the scope for testing the plausibility of annual data changes implies that the extent of cumulative error in the political and policy variables is well below this level.

Overall then, although there are some inaccuracies in the data and the derived measures, these are not sufficient to attenuate seriously the estimated coefficients in the empirical analyses. Indeed, the construction of the variables from a data set based on regular surveys implies that the measures of politics and policy are more reliable than the measures in most 'snapshot' output studies. Thus the

reliability of the measures contributes strongly to the quality of the evidence. It is necessary next to consider the validity of the measures, which depends on whether the concepts have been appropriately operationalised.

(b) The Operationalisation Of The Concepts

Theoretical hypotheses contain general concepts but empirical tests contain specific measures. Thus the implications of the evidence for the hypotheses depends on the 'correspondence' between the concepts and the measures.

In the literature on scientific method it has been argued that theories are 'incommensurable' because the same concept has different meanings in different theories.(10) An apparently more mundane but equally pressing problem is the ambiguity of concepts even within the confines of a given theoretical perspective. Conceptual ambiguity has profound consequences for the interpretation of empirical evidence. An imperfectly defined concept cannot be 'perfectly' operationalised, even in principle.

The practical response to conceptual ambiguity is to use an empirical measure which corresponds to the meaning of a concept in the context of the specific hypothesis to be tested. Thus the operationalisation of the concept of 'policy' in chapters III to VII was constrained by the hypotheses for the political variables. Measures of rates, staff and expenditure were selected because there were good theoretical reasons to expect the political variables to influence these policy outputs. The context in which the policy variables were used also determined whether they were specified as levels or change, and the particular measures of change.(11) For example, in chapter VII the monetary change in spending was measured to examine the magnitude of the substitutive or stimulative impact of grants.

The extent to which the four political concepts can be defined unambiguously and measured directly is variable. The operationalisation of the concept of central grants is the most straightforward. The concept is clearly defined as a flow of funds from central to local

government. The definition refers to a directly 'observable' phenomenon: the transfer of a quantity of money. Different dimensions of the concept are also directly measurable through the monetary value of lump-sum and matching grants. However, it may be argued that the operationalisation of the concept could be more precise. For example, in principle it would be possible to weight each pound of matching funding by the formally required matching rate. Such adjustments to the 'raw' grant figure may produce more sophisticated measures of changes in grants and a more complete explanation of local expenditure decisions.

The meaning of the concept of 'party politics' is open to many interpretations. However, in the context of local policy variation, the most relevant dimension of the concept concerns the party composition of the council. Other dimensions, such as legal and institutional arrangements, are constant across local political systems in the U.K. This practical constraint on the operationalisation of the concept leaves some

important issues unresolved. For example, which parties to include in the measure and whether seat share or outright control most closely corresponds to the concept. There are no definitive answers to these questions and it may therefore be argued that the specific measures employed in the empirical analyses were inappropriate. However, it should be noted that experimentation with a variety of measures of seat share and control made little difference to the statistical results.(12)

The concept of median voter interests was operationalised through the financial cost of a rate increase. This measure is consistent with the assumption in rational-choice theory that political behaviour is 'self' interested. However, the operationalisation may be too narrow because it focuses on only the costs of local tax changes. Self interest may also be defined to include the perceived benefit of the extra services provided with higher tax revenue. To capture this dimension of the concept of median voter interests it would be necessary to measure

the value placed on public spending by median voters. The test of the median voter hypothesis did not explicitly contain such a measure. However, it is likely that perceptions of the benefits of additional public spending are closely linked to local political dispositions. In this case, the control for Labour seats in the median voter model may be taken to justify an otherwise narrow measure of median voter interests.

Bureaucratic power is the most difficult of the four political concepts to operationalise. The relevant dimension of the concept is not easily defined in principle and cannot be directly measured in practice. The appropriate operationalisation of the concept depends on the definition of 'self interest'. Whatever definition is adopted, the concept must be measured indirectly by isolating bureaucratic power from the variable which it is assumed to influence. The major problem with this approach to the operationalisation of the concept concerns the separation of bureaucratic power from other

variables. It may be that the 'purging' process in chapter IV stopped short of the required level of precision. The residual from the equation used to estimate bureaucratic power may have contained the effect of other variables on staffing levels. However, it is difficult to arrive at a judgement on this issue in the absence of other similar measures of bureaucratic power to serve as external reference points.

In sum then it makes little sense to consider the validity of the operationalisation of the concepts without considering the specific content of the hypotheses. It is possible that each of the concepts may have been defined and measured with greater precision. However, given the constraints of conceptual clarity and data availability, it can be concluded that the validity of the measures is sufficient to warrant confidence in the quality of the evidence.

(c) The Auxiliary Assumption of Ceteris Paribus Proviso

The theoretical implausibility of 'single cause'

explanations of policy outputs implies that all hypotheses concern the net impact of an independent variable when other influences are held constant. Thus a crucial auxiliary assumption in the interpretation of the evidence is that 'all other things are equal'. As argued in chapter I, this requires that all relevant explanatory variables are included in the wider model used to test the hypothesis. In this case the auxiliary assumption is valid because statistical control provides evidence on the hypothesis 'as if' all other things are equal.

If the auxiliary assumption is not valid then the quality of the evidence on the impact of the four political variables is seriously undermined. In this context unsupported hypotheses may be saved. For example, it may be argued that if all other things had been equal then the impact of median voters and bureaucrats would have been significant. Similarly, hypotheses which are apparently supported by the evidence may be discarded. For example, it may be argued that if

all other things had been equal then the impact of parties and grants would not have been significant.

The validity of the auxiliary assumption may be questioned on either theoretical or empirical grounds. If variables are contained in theoretical models but omitted from a statistical model then it may reasonably be argued that all other influences have not been controlled. The empirical evidence is to some extent protected from this criticism, because all the political hypotheses were tested while controlling for constraint variables such as needs and resources. Nevertheless, the multiplicity of theories of policy making implies that some potentially important variables may have been omitted. However, the mere possibility of this problem in principle does not undermine the evidence. In practice it is reasonable to accept the validity of the auxiliary assumption until the supposedly omitted variables are measured, tested and shown to produce different results.

The validity of the auxiliary assumption may also be criticised for empirical reasons. If it is assumed that the influences on policy outputs are largely 'systematic' rather than 'random', then it should be possible to obtain a high level of statistical explanation. Thus a substantially incomplete statistical explanation would suggest that not all relevant variables have been controlled, even if the identity of such variables is unknown. In some of the empirical analyses in chapters III to VII less than half of the variation in policy outputs was accounted for by the multivariate models (see Table VIII.1). This may be taken to indicate that the auxiliary assumption is invalid. However, it is possible that the remaining variation is attributable to random or ad-hoc influences. Some policy outputs do appear to be the product of chaos and misunderstanding. For example, a comedy of errors in Mid Glamorgan County Council in 1986 resulted in councillors adopting a set of budget proposals which they had intended to reject.(13)

Table VIII. 1 Levels of Statistical Explanation In The Empirical Analyses Of Local Policy Variation

	$R^{(2)}$ (%)		
	Mean	Minimum	Maximum
Tax Policies	36	13	68
Staffing Policies	30	0	76
Economic Development Policies	68	60	75
Total Spending Policies	67	43	79

If the unexplained variation in policies is attributable to random influences, then it may be inferred that the estimated coefficients for the political variables are unbiased. In this case the impact of politics has not been artificially inflated or suppressed by the omission of relevant variables from the regression models. Further, there is an indication in the evidence that the results for the political variables are not much altered by the level of statistical explanation which is obtained. In chapters III and IV the impact of median voters and bureaucrats did not tend to be more significant in those contexts where the multivariate models yielded a relatively high R^2. Similarly, in chapters VI and VII parties and grants did not tend to be less significant where the models yielded a relatively high R^2.

In sum, the argument that 'all other things were not equal' could be used to protect all the unsupported hypotheses and to discard all the supported hypotheses. However, despite the potential force of this argument, its actual force can be determined only by further empirical

analysis. In this context, it is reasonable to interpret the evidence on the basis that the auxiliary assumption is valid.

(d) Summary

There are no definite yardsticks for evaluating the validity of empirical evidence. Nor are there any rules for the relative weight to be attached to each of the three criteria discussed above. Therefore, it is impossible to gauge precisely the quality of the tests of the hypotheses for the political variables. However, it can be concluded that the validity of the evidence has been established 'beyond reasonable doubt'. On this basis, the following sections proceed to discuss the implications of the evidence for the rational choice and party government models of local policy variation.

2. Theoretical Implications Of The Evidence: Rational Choice

The view that local outputs can be explained by variations in median voter interests or bureaucratic power was not consistent with the empirical evidence. Therefore it is necessary to consider possible defects in the hypotheses for these variables in particular and in rational choice theory in general.

(a) Median Voters

The statistical results in chapter III indicated that median voter interests are not a significant influence on local tax policies. Two possible reasons for the failure of the median voter hypothesis can be identified. First, it may be that local politicians realise that their policy decisions are, at best, a marginal influence on local electoral behaviour. Any attempt to buy votes by targeting policies on median voter preferences may be swamped by national trends in public opinion.(14) In this case local politicians may prefer to pursue 'ideological'

policies rather than seek the middle ground. This course of action is, in effect, a rational preference of a certain policy gain over an uncertain electoral gain. A second explanation for the absence of policy responsiveness to median voter interests concerns the shape of the distribution of public opinion. In each area the distribution of opinion of the whole public may be unimodal, but the distribution of opinion amongst the voting public may be bi-modal. Turnout at local elections is generally low and most voters may be strongly committed to particular parties. If the distribution of opinion amongst actual voters is bimodal then politicians have little to gain by pursuing the minority position of the median voter. Instead the rational choice in this context is to match policies to the preferences of supporters rather than the median position in the whole electorate. (15)

The median voter hypothesis may therefore be valid only when local electoral behaviour is

dominated by local issues and when the distribution of opinion amongst actual voters is unimodal. There is little evidence that either of these conditions is fulfilled in the U.K. local government system. Even if the median voter hypothesis proves to be valid in such circumstances, its theoretical status would be that of an interesting special case rather than a general explanation of local policy variation.

Thus, the median voter model does not explain variations in policy outputs. The key political influence on local authority decisions is not the preferences of median voters as policy 'consumers'. Therefore, it is inappropriate to view local political systems as analagous to perfectly competitive economic markets.

(b) Bureaucratic Power

The empirical evidence in chapter IV indicated that bureaucratic power is not a significant influence on local staffing policies. The lack of support for the bureaucratic power hypothesis

suggests that it, too, may be valid only under special circumstances. A possible explanation for the failure of the hypothesis is that bureaucratic preferences are closely matched to local political dispositions. It has been noted that councils tend to attract and recruit senior staff whose views are compatible with the prevailing political ethos in the authority.(16) Thus bureaucrats may have little distinctive influence on the broad thrust of council policies. In this case separate bureaucratic effects on policy outputs may occur only in the period between a change of party control and the appointment of new staff with 'suitable' attitudes. However, it has been argued that officials may find it most difficult to outmanoeuvre politicians with a new electoral mandate.(17) Even in the special context of political change, then, bureaucrats may have little influence on policies.

Another explanation for the absence of bureaucratic effects is that bureaucratic preferences are not stable but alter when

constraints alter. Thus it may be that local bureaucrats preferred to use discretionary income for staff maximisation in the 1970's. However, it is possible their preferences changed in the face of new financial and political constraints in the 1980's. In this case the 'staffing' measure of bureaucratic power may have been unrelated to subsequent changes in staffing because bureaucrats turned their attention elsewhere. This argument assumes that bureaucrats have the ingenuity to reorder their preferences and the freedom to change their behaviour accordingly. If bureaucrats can reallocate discretionary funding in this way, then their influence on policies will remain undetectable unless the change in preferences can be predicted. Thus considerable theoretical development is required to save the bureaucratic power hypothesis by this route. It would be necessary to specify and test a model of changes in bureaucratic preferences and a model of constraints on bureaucratic behaviour.

In sum then, the bureaucratic power model does

not provide a satisfactory explanation of policy outputs. The preferences of bureaucrats as policy 'producers' are not a key determinant of local policy variation. Thus the analogy of a monopolistic economic market sheds little light on the operation of local political systems.

(c) Rational Choice and Self Interest

The general characteristic of rational choice theory which underlies both the median voter and bureaucratic power hypotheses is the 'self interest' assumption. Thus the crucial defect in rational choice models may be that policy makers are not primarily motivated by narrow self interest. In response, the rational choice theorist may claim that the 'realism' of the self-interest assumption is irrelevant. Niskanen and Downs have both argued that the only criterion for evaluating a hypothesis is its 'predictive power'.(18) Their arguments draw directly on Friedman's 'methodology of positive economics'.(19) However, this methodological perspective is not appropriate to the aim of

output studies. Friedman's argument concerns models of statistical prediction,[20] but output studies are concerned with substantive explanation. Even if the 'irrelevance of assumptions' thesis is accepted, another problem remains. It may be permissible to accept simplistic assumptions if models with high levels of statistical explanation are thereby generated. However, in the context of local policy variation, rational choice theory appears to combine simplistic assumptions with low levels of explanation.

It may be argued that in principle rational choice models can be improved if the self interest assumption is abandoned. However, in practice, alternative motivational assumptions tend to be vague and ad-hoc. For example, Goodin has argued that bureaucrats are motivated by 'mission commitment'[21], and Dunleavy has argued that the principal aim of senior public officials is 'bureau shaping'.[22] These notions seem to amount to little more than the argument that 'bureaucratic power is as

bureaucratic power does'. This removes the cutting edge from rational choice theory. As Laver has argued, such formulations are "very convenient but rather unsatisfying, since rational choice theory becomes little more than the rationalisation of choice". (23)

(d) Summary

The operationalisation of a general political theory of local policy variation requires the selection of specific political variables. One potentially relevant set of variables is identified by rational choice theory. However, the evidence indicates that the concepts of median voter and bureaucratic preferences add little to an understanding of the politics of policy outputs. It is important to remember that this is the first application of rational choice theory within the field of output studies. These variables may subsequently be found to influence policies other than those analysed here. Even if further empirical tests fail to support the hypotheses it may be argued that 'tenacity' is

the required response in the face of apparently adverse results. However, if repeated tests of good quality fail to uncover the effects of median voters and bureaucrats, then the determinants of local policy variation must rationally be sought elsewhere.

3. Theoretical Implications Of The Evidence: Party Government

The view that local policy outputs can be explained by the ideological disposition of ruling parties was generally supported by the empirical evidence. Thus the results corroborate Sharpe and Newton's argument that parties "are a much more potent factor in influencing governmental outputs than much of previous output research has recognised".(24)

(a) Local Party Politics

The analysis in chapter IV did not support the 'disaggregation' hypothesis. The impact of politics is no stronger on sub-services than on aggregate services. This pattern was common to various aspects of the personal social services and education. The pattern was also common to evidence derived from several studies. Thus, output disaggregation does not appear to be a promising path towards the discovery of party effects.

The reason why the disaggregation hypothesis was not supported can be found in the results for party effects in chapters VI and VII. The evidence in chapter VI supported the hypothesis that party politics is a significant influence on economic development policies. Similarly, the evidence in chapter VII supported the hypothesis that the impact of parties on total spending policies is significant. Thus aggregate service expenditure and total expenditure are not 'accounting abstractions' devoid of political conflict, but are subject to substantial party effects.

The empirical evidence in chapters VI and VII has two important general implications for the party government model. First, the formal mechanisms of representative democracy do matter. To the extent that parties have different priorities, it is possible to impress such differences on policy outputs. The evidence indicates that the scope for implementing distinctive policies is circumscribed by other political variables, service needs and financial resources. However,

local party programmes are neither entirely rhetoric nor entirely bound by such limits. Further, parties are not pulled to a common policy position by the weight of median voter preferences. Thus, the replacement of one set of elected politicians by another set does make a difference to the formal commitment of resources by local authorities. This is not to argue that the policies produced by local political systems will correspond precisely or even closely to the expectations of the electorate. However, the broad direction of policy, as reflected in spending decisions, is partly predictable on the basis of the party voted into office. This conclusion may allow political scientists reduced to 'near panic' by previous output studies results to regain some composure.

A second implication of the results for the party government model concerns the additive and mediative roles of local politics. The evidence in chapter VI indicated that the effect of parties on economic development policies is mediative. By contrast, the evidence in chapter

VII indicated that effect of parties on the change in total spending is largely additive. The general Easton model offers no guidance on the circumstances in which each type of party effect is most likely to occur. However, the pattern of the evidence suggests that mediative effects are more likely when local politicians have discretion in responding to conditions or inputs. Thus mediative effects may be facilitated if statutory constraints are weak, as in the case of economic development expenditure. Similarly, mediative effects may be prevented if formal constraints are strong, as in the case of the expenditure requirements of matching grants. However, it is unlikely that any theoretical formulation of the role of parties will be so precise as to rule out either additive or mediative effects on an a priori basis. Therefore, in practice it will be necessary to continue to test both effects. Ultimately, if a sufficient body of evidence is produced, it may be possible to clarify when each type of effect is most likely to occur.

Thus, the evidence in chapters VI and VII supports a clear conclusion: local politics matters. It is possible to identify two reasons why this evidence differs from the bulk of the evidence summarised in chapter I. The difference may reflect either the time periods studied or the methodologies employed.

Two countervailing forces are at work on the relationship between parties and policies in the 1980's. Party effects may be <u>stronger</u> than in the 1960's or 1970's because party conflict is more pronounced. However, the sharpness of party conflict in local authorities is to some extent a reaction to central attempts to curb the influence of local parties. Such central policies may have produced <u>weaker</u> party effects in the 1980's than in the 1960's and 1970's. It is difficult to gauge the net result of these countervailing forces. However, unless the balance is substantially towards stronger party effects, the contrast between this evidence and earlier evidence can be attributed in part to different methodologies. Previous studies of

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local policy variation might also have uncovered significant party effects if tests had been conducted on an explicit theoretical basis, if variables had been appropriately operationalised, and if relevant lag structures had been used.

(b) Central Grants

The absence of good empirical evidence has facilitated widely differing interpretations of the impact of central grants on local spending decisions. Grant effects were believed to be weak in the 1960's, on little basis other than the mere existence of local spending variations.(25) Similarly, grant effects in the 1980's are believed to be strong,(26) largely on the basis that central government has sought control of local expenditure. The empirical evidence in chapter VII suggests that the actual impact of grants is somewhere between these two positions. The distribution of grants allows central government to influence, but not to control, local spending decisions. Over time, the magnitude of estimated grant coefficients may be used to gauge changes in central influence.

The evidence on grant impact has implications for the general conceptualisation of local political systems and for the role of central funding in models of local policy variation.

The effect of grants on spending suggests that local political systems are appropriately conceptualised as 'open' systems. Early political explanations of policy outputs focused on the internal characteristics of local political systems. After Dawson and Robinson, the theoretical perspective was broadened to include the influence of local environmental conditions. In the Easton model the environment also includes other levels of government, but the emphasis in models of local policy variation has remained largely local. The explanation of policy outputs may benefit from attention to several aspects of inter-governmental relationships. These include not only inputs from central government, but also inputs from other local authorities and from supra-national governments, such as funding from the E.C. A model which integrates political variables from

several levels of government may well provide a more complete explanation of policies than conventional 'local' models.

Analyses of the financial relationship between central and local government have largely stressed the 'dependence' of local authorities on grant funding. The empirical evidence suggests that this conceptualisation is inappropriate. First, the focus on 'dependence' is misleading because the level of central funding in itself does not influence local responses to grants. Second, the single dimension of dependence masks the variety of grant effects. For example, the impact of grants on spending depends on whether grants are lump-sum or matching. Thus, not only is it necessary for theories of local policy variation to encompass intergovernmental relationships, but it is also necessary to take the potential complexity of such relationships into account.

(c) Summary

In contrast to the rational choice perspective, the party government model contributes significantly to an understanding of why different local authorities adopt different policies. At local level, an important characteristic of party government is the disposition of the ruling group on the council. At national level, party government influences policy outputs through the allocation of financial resources to local authorities. Thus it can be concluded that the role of elected politicians must be a key element in a political theory of policy determination. Politicians do have some autonomy from external constraints, and this autonomy is used to adopt policies which correspond broadly to their stated ideological preferences.

Implications For Further Research

The final issue to be considered is the implication of the evidence for the utility of the output studies approach to the analysis of local policy variation. Given the aim of discovering the causes of public policies, is it worth persevering with output studies or should some other approach be tried?

As noted in Chapter II, output studies have been widely criticised on both theoretical and empirical grounds. For example, Danziger has argued that output studies typically lack a theory of how the independent variables influence policy outputs and often posess "minimal explanatory power".(27) Many studies of local policy variation are culpable on both of these counts. However, this research has demonstrated that such problems are not inherent characteristics of output studies. The multivariate models often provided a good level of statistical explanation, and provided good substantive explanations because the variables were tested on the basis of explicit hypotheses. Thus the models worked in theory as well as in practice.

The best performance of the statistical models was for policies on economic development and total spending. These results are especially noteworthy because the output studies approach has not generally worked well for small categories of spending or for policy change. Therefore, if appropriate theoretical and methodological principles applied, policy outputs which have not previously proved tractable may be explained successfully by output studies.

The success of the models for economic development and total spending provides substantial support for the utility of output studies. However, the models for rates and staffing generally performed much less well. Two broad responses are possible when the output studies approach produces such results. Either the approach must be rejected or the statistical models must be improved. Each of these responses is evaluated in turn.

If output studies are to be replaced by an alternative mode of policy analysis then two conditions must be fulfilled. It is necessary to show that an alternative exists in principle, and to provide some justification

for the belief that it will work better than output studies in practice.

The major alternative to statistical modelling of policy outputs is the qualitative case study. The aims of an individual case study and an individual output study clearly differ. A single case study seeks to identify detailed influences on policy in a particular local authority, whereas an output study seeks to identify general influences on policy across a set of authorities. However, the ultimate aim of both methods is to identify the causes of public policies. It is therefore possible to compare their relative merits directly. There are three reasons why the case study approach is inferior to output studies.

First, it is impossible to tell whether case studies yield results which are representative and therefore generalisable. By contrast, comparative statistical analysis yields results which can be used to draw conclusions about the population of local political systems from which the sample is drawn, by following the conventions of statistical inference. The criteria of statistical significance can be altered to reflect such criteria of substantive significance as are deemed appropriate. (28)

Second, case studies cannot estimate the net effect of a political variable on policies while controlling for other influences. By contrast, this is possible through comparative statistical analysis. Commenting on case studies of legislative behaviour, Downs states that "case studies have traditionally been concerned with the behaviour of 'actors' in what often amounts to a narrowly defined closed system ... Unfortunately, the larger societal forces that constrain and motivate the behaviour of legislators (by determining the nature and definition of problems and the resources available to deal with them) are frequently difficult or impossible to detect when doing a single case study".(29) Awareness of such 'larger societal forces' is certainly present in case studies of British local authorities.(30) However, the case study method cannot estimate with any precision the unique influence of local actors independent of such forces. This inherent problem is compounded in actual case studies by the failure to state initial hypotheses and criteria of relevant evidence. It has been argued that the typical case study "lacks rigour, lacks a definite logical structure, ... is all too easy to verify and virtually impossible to falsify. It is, or can be, persuasive precisely because it never runs the risk of being wrong".(31)

The final reason why the comparative statistical method is superior to the case study method is also the most fundamental. It concerns not the capacity to yield evidence on specific hypotheses, but the capacity of the two approaches to provide evidence which challenges their own general validity.

The rationale of output studies is that political and enviornmental characteristics which vary systematically across local authorities have a significant impact on public policies. However, the approach can and does yield evidence which, by the canons of statistical significance, flatly contradicts this assumption. Some output studies explain literally none of the variation in local policies. Thus the evidence produced by comparative statistical analysis can undermine not only specific hypotheses but the whole research strategy itself. By contrast, case studies of the policy process are never seen to fail. The underlying rationale of the approach is that 'idiosyncratic' factors, such as the action and interaction of individuals and groups in specific circumstances, independently affect policy outputs. Given that policy decisions are an inescapably human activity, case studies of the local policy process are preconditioned to find something which is apparently 'significant'.

None of these criticisms should be taken to imply that case studies are of no value in the explanation of policy variations. For example, case studies may be useful as a base for the development of a formal model, as in the analysis of economic development policies in chapter VI. However, the case study method is more properly viewed as an adjunct to statistical modelling rather than an alternative general research strategy.

In the absence of a convincing alternative, the most appropriate response if the output studies approach performs poorly is to modify the specific model rather than reject the 'paradigm'. Indeed there is considerable scope for 'normal science' within the output studies tradition.(32) Potential improvements in models of local policy variation include wider and more refined measures of both political variables and constraint variables. Indeed, if more comprehensive explanations of local policy outputs are to be achieved it is essential to develop better multidisciplinary models. However, it will be necessary not only to be aware of the potential importance of variables emphasised by disciplines other than political science, but also to be sceptical of the specific indicators which such disciplines have conventionally employed.

In conclusion, this research has analysed the reasons why different local authorities adopt different policies. The specific focus has been on the impact of four main political variables on policy outputs. The empirical evidence showed that neither median voters nor bureaucrats make a significant difference to local policies, but that the impact of party politics and central grants is important. Thus the politics of local policy variation is better represented by the party government model than by rational choice models.

The empirical evidence also showed that the output studies approach is capable of providing explanations of local policy variation which are theoretically coherent and statistically successful. There is considerable correspondence between the empirical evidence and the conceptualisation of policies as the result of constrained political choice. Much work within output studies remains to be done. However, further developments will never generate 'complete' explanations of policy outputs. The practical success of the output studies approach is inherently limited by problems such as conceptual ambiguity and data accuracy and by the presence of random influences on policies.

Nevertheless, it will be possible for output studies to produce evidence of high quality on the impact of politics. And it may yet be possible to explain most of the variation in local policies most of the time.

Notes:

1. See W.H. Newton-Smith, The Rationality Of Science, (London, Routledge and Kegan Paul, 1981).

2. See B. Caldwell, Beyond Positivism: Economic Methodology In The Twentieth Century (London, George Allen and Unwin, 1982).

3. This view would be disputed by those who believe in an 'anarchistic' approach to science. See P. Feyerabend, Against Method (London Verso, 1975). However no alternative approach has outperformed 'rational' science as a means of producing desired results. See Newton-Smith, The Rationality Of Science.

4. The argument is an example of the general logical fallacy of 'affirming the consequent'.

5. See J. Jacob, Using Published Data, (Beverley Hills, Sage, 1984).

6. Annually in most cases. The 'manpower watch' data is collected quarterly.

7. For example, the political data in the Municipal Yearbook is prone to the transposition of Labour and Conservative seats. Such errors are unlikely to be detected in a single year.

8. The social class data used in the construction of the bureaucratic power variable is the sole exception. This is based on a 10% sample of households in each area.

9. Audit Commission, The Management Of London's Authorities: Preventing The Breakdown Of Services (London, HMSO, 1987).

10. See P. Feyerabend, Against Method; J. Geise, 'Theory Construction And Political Inquiry', Canadian Journal Of Political Science, 4 (1976), 627-53.

11. On measures of change, see D. Van Meter, 'Alternative Methods Of Measuring Change: What Difference Does It Make?' Political Methodology, 1, (1971), 125-40.

12. See also J.E. Alt, 'Politics And Expenditure Models', Policy and Politics, 5, (1977), 83-92.

13. H. Elcock and G. Jordan (eds), Learning From Local Authority Budgeting (Aldershot, Gower, 1987).

14. On the relative importance of national and local influences on local elections see H. Cox and M. Laver 'Local and National Voting In British Elections: Lessons from the Syncro-Polls of 1979', Parliamentary Affairs, 32, (1979), 383-93; R. Waller, 'The 1979 Local and General Elections In England and Wales: Is There A National/Local Differential', Political Studies, 28, (1980), 443-5.

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16. Elcock and Jordan, Learning From Local Authority Budgeting.

17. V. Bunce, Do New Leaders Make a Difference? (Princeton, Princeton University Press, 1981).

18. W.A. Niskanen, Bureaucracy and Representative Government (Chicago, Aldine Atherton, 1971); A. Downs, An Economic Theory Of Democracy, (New York, Harper and Row, 1957).

19. M. Friedman, Essays In Positive Economics (Chicago, University Of Chicago Press, 1953).

20. Caldwell, Beyond Positivism.

21. R.E. Goodin, 'Rational Politicians And Rational Bureaucrats In Washington and Whitehall', Public Administration 60, (1982), 23-41.

22. P. Dunleavy, 'Bureaucrats, Budgets and The Growth Of The State', British Journal Of Political Science, 15, (1985), 299-328.

23. M. Laver, The Politics Of Private Desires (Harmondsworth, Penguin, 1981), p.161.

24. Does Politics Matter?, p.125.

25. N. Boaden, 'Central Departments and Local Authorities: The Relationship Re-examined', Political Studies, 18, (1970), 175-86. See also J. Danziger, Making Budgets, (Beverley Hills, Sage, 1978), p.58.

26. E. Page, 'Fiscal Pressure And Central-Local Relations In Britain', in M. Goldsmith and S. Villadsen (eds) Urban Political Theory and The Management Of Fiscal Stress (Aldershot, Gower, 1986).

27. Danziger, Making Budgets, ch.4.

28. See C.H. Achen, Interpreting and Using Regression, (Beverley Hills, Calif: Sage, 1982).

29. G. Downs, Bureaucracy, Innovation and Public Policy, (Lexington, D.C. Heath, 1976).

30. See for example P. Saunders, Urban Politics, (Harmondworth, Penguin, 1979); K. Young and Kramer, Strategy and Conflict In Metropolitan Housing, (London, Heinemann, 1978).

31. M. Blaug, The Methodology Of Economics, (Cambridge, Cambridge University Press, 1980), 127.

32. On paradigms and normal science see T. Kuhn, The Structure Of Scientific Revolutions (London, University of Chicago Press, 1970). It is arguable whether, by Kuhn's criteria, output studies are 'pre-scientific' or in near permanent 'crisis'.

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